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Radio Control **CAR ACTION**

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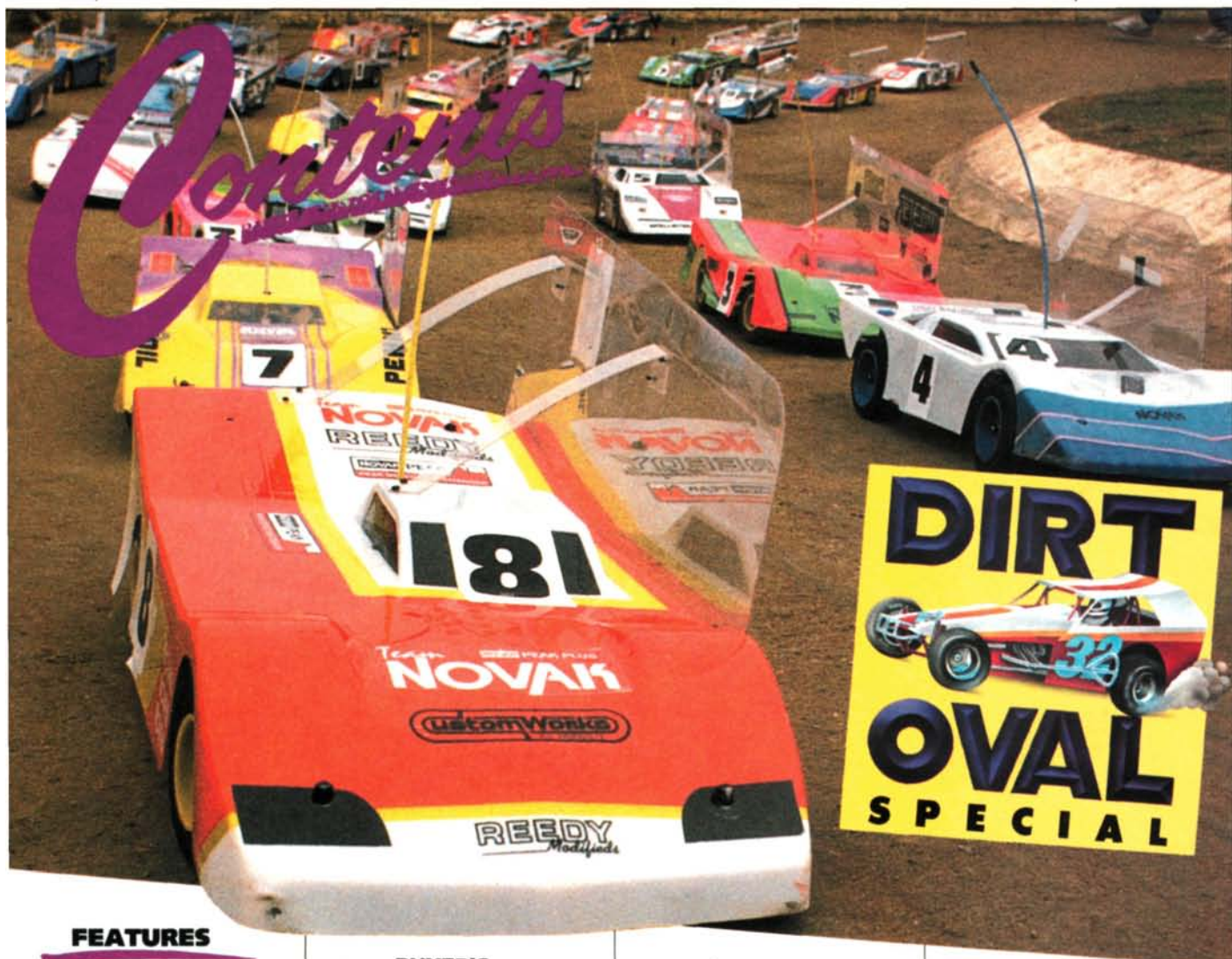
**NEW AVANTE:
Next World Champ??!**

**NIGHT RACING:
DO IT IN THE DARK!**

**All About
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PROJECT: BIG BEAR Part II





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ON THE COVER

Center right: Tamiya's new contender, the Avante. Center left: the Electro-Vee—Hobby Lobby's latest electric fast boat. Bottom: Concours line-up at the JG Dirt-Oval Championships. Top right: full-scale sprint car powering through the turn. JG Oval photos by Rich Hemstreet, all others by Steve Pond. Dirt-Oval air-brush work by Garrett Miller.

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by CHRIS CHIANELLI

Radio Control CAR ACTION

Group Publisher
LOUIS V. DeFRANCESCO, JR.

Publisher
DR. LOUIS V. DeFRANCESCO
Associate Publisher
YVONNE M. MICIK

• • • • •
Executive Editor
CHRIS CHIANELLI

Associate Editor
STEVE POND

Technical Editor
RICHARD URAVITCH

Copy Editor
LYNNE SEWELL

Editorial Assistants
JACQUELYN NIZOLEK
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Midwest Editor
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West Coast Editor
MIKE LEE

• • • • •
Art Direction & Design
ALAN J. PALERMO

Assistant Art Director
MARY LOU RAMOS

Art Assistant
MATT LONGLEY

Typographer
CHERYL CERESI

Airbrush Artist
GARRETT MILLER

• • • • •
Advertising Director
FREDERICK J. MURPHY

Advertising Traffic Manager
CHRISTINA FURIORE

Advertising Production Manager
PENNY CURCIO

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WHILE LOUIS "THE AYATOLLAH" DeFRANCESCO is out on the Wasteland, it's a perfect time for me to usurp the Editorial page. I'll just put any directives and/or decrees he spouts in our general direction on another page, and call it the "Publisher's Page." He's so busy studying to reach new epithetical plateaus, that he'll never notice—unless you tell him!

POWER-SLIDE YOUR WAY through a sweeper with dirt rooster-tails coming off all but your left front tire, then hit the straight with brute acceleration, and you're already setting up for the next power slide to the left. If you happen to be in the lead, don't ever let up, because there's someone just inches behind you ready to take your lead away at the first mistake, etc. It's an aggressive freight train of race cars, and it's dirt-oval racing at its best. This has always been one of my favorites, because the field is almost always crowded, and things can change at a moment's notice. A lot of this month's issue is dedicated to this kind of high-speed hysteria.

Dirt ovals, are a great place to start your racing career, as you'll quickly learn the value and meaning of "pacing yourself" and working a "rhythm" into your driving style. If I've grabbed your interest so far, read on.

Steve "Smitty" Pond shows you how to convert your Optima and Optima Mid into dirt-oval racers. Rich Hemstreet brings you a 2WD conversion of an RC 10 and reports on the JG Oval Champ, so giving you a heads-up on the national oval scene.

We also show you how to get double the value out of all your racing hardware by using them in electric *fast* boats. Joel "Magic" Johnson brings you more racing tips in "The Racer's Edge," and we welcome aboard Ryan Fitz with his in-depth Track Report on the Avante, Tamiya's all-out entrance into serious racing. And, of course, there's lots, lots more.

WARNING: The Ayatollah of Radio Controlla has declared, "R/C car racing may be habit-forming and will increase your likelihood of...showing no mercy!!"



Launching MRP's ultra-rapid electric hydroplane. Why is he holding his shirt in his teeth?

Letters



POSTAGE

DC

F-1 On The Way

We R/C enthusiasts stationed in Germany have problems obtaining good advice about products and modifications. One of our best sources of information is your magazine.

I have some questions about open-wheel (Formula 1) racing. Is it growing in popularity? I haven't seen any mention of F-1 racing in your magazine. I saw an MRC/Tamiya ad that introduced two new F-1 cars, and both appeared to be Road Wizards. Are there any modifications that can boost the performance of the Road Wizard? Other than the addition of a beefed-up steering linkage, a hotter motor and an electronic speed control (all of which I have), there doesn't seem to be much more you can do. Is it possible to fit a 1/12-scale NASCAR body over the F-1 chassis by removing or modifying the front wing and removing the rear wing? If it could be done, would the car be considered legal for use in sanctioned stock-car races? I really like the handling of the Road Wizard. I have fewer problems with washing out in the turns than my friends do with their Invaders and Roundtrackers.

Keep up the good work. You have an excellent magazine, even if you don't show any F-1 races!

SGT. JOHN J. BERNICK
Germany

Sgt. Bernick, our October '88 issue is going to be an open-wheel special that includes coverage of the Indy 500. Also, we're going to feature a track report on the Tamiya Formula 1.

You've covered the basic Road Wizard modifications, except for the addition of ball bearings. Other hop-up tips would be careful tire selection and dialing-in the car. More after-market parts will become available if the F-1 becomes more popular. I see no reason why a 1/12-scale stock body couldn't be added to the Road

Wizard, but I'm not sure if it would conform to ROAR specs. I hope you'll still find RCCA an excellent magazine, even if we do feature F-1 cars! CC



Offensive??

On page 41 of your Feb. '88 issue, there is an offensive ad from McAllister Racing. I'm very upset by this ad, as my 13-year-old son and his friends read your magazine. From now on, I will never buy, or let my child buy, a McAllister product.

ELLIS ANN RODGERS
Birmingham, AL

Mrs. Rodgers, there are many more horrible things to get upset about in this world than a drawing of a woman in a bathing suit. I want to know what other readers think, so please respond to Mrs. Rodgers's letter. CC

Change the Connector

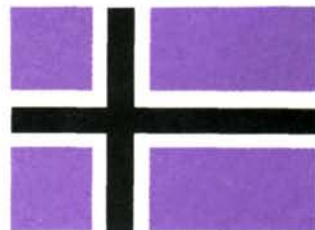
Great work! Love your magazine. I ordered my car from one of your books.

The speed control on my stock Ultima burned out when my tires got stuck, but that's not the problem. The problem is that I bought an MC 112B speed

control and the plug doesn't connect to the pulsar receiver. My hobby dealer said I might need a new radio. What should I do—get a new radio or order a different speed control?

STAN HARDER
Canada

Stan, hold everything! Don't buy either. All you need to do is solder a matching connector to your speed controller to mate up to your radio. Sounds to me like your hobby dealer is more interested in taking your money than in helping you, with your problem. CC



Norway Calling

Hi! I'm a 16-year-old boy from Norway, and I'm happy I can enjoy your mag here, too! Too bad that I must pay almost \$5 for it, but it's worth it.

I've purchased a Grasshopper, a Hot Shot II and a Midnight Pumpkin. I was wondering which LeMans motor I must use to get the best performance out of my Hot Shot.

I love your track reports, except for one thing: You should use the original equipment. Then you could explain how to get better performance in a follow-up track report.

Thanks for the great material! See you later, alligator!

SVEINUNG SAETRE
Alta, Norway

(Continued on page 10)

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Letters

Hi Sveinung, Mr. Alligator Editor here. Glad to know that R/C car racing is hot in the icy land of the Norseman. Since it takes quite some time for you to get our mag, you may not know that we now test all cars in stock form first. If you're sold on a LeMans motor, try one of the wet magnet units; the SPA 240WS or the SPA 480WS. Write to us again, and be careful of those fjord alligators! CC

Advanced Out of Existence

About a year ago, I stated that we had a serious problem with our Stock Motor Rules (namely, the timing advance). I proposed that we write some definite rules governing the tolerances allowed concerning timing advance, similar to the way we govern turns, wire size, etc. As usual, I received no response to this proposal.

A year has passed and the problem has magnified. Every month there's a new "hot" Stock motor, because some enterprising manufacturer has notched another 4 degrees on the timing of his motor, which he hopes will increase his sales. What have we accomplished? Yes, the motor runs faster, but the life of this motor is dramatically shortened. I don't think the average racer who buys a stock motor cares about or runs these motors as our friends do in California—i.e., crank it to the max until it blows up after two runs and then ask the sponsor for another one! Something is radically wrong. This motor situation is starting to resemble Group 7 Slot-Car racing. Is this what it's all about? Do we want to risk our most popular form of racing (Stock racing) because there are no limits on motors? How can you have a class that was developed with limits in mind (i.e., have all the motors run the same) with no limits on timing? Example: Racer A runs his Brand-X stock motor 27 turns 22AWG with a factory spec of 13 degrees. Racer B runs his Brand Y stock motor with 27 turns

22AWG with a factory spec of 21 degrees. The difference is that Racer B is now running what is equivalent to 25 turns against Racer A! Is that what we want? If you're not going to establish limits on timing, then why have rules at all for stock motors? Why run stock at all? It's now more expensive than modified!

I propose that all importers agree on uniform timing rules that are checked periodically by ROAR. Manufacturers should be given enough lead time to change their orders in Japan and set a new date when these new stock motors are legal and the others aren't (maybe Jan. 1, 1989). We need to agree on something *now*, so it's possible to go to this new method in 1989! Let's try and save the largest attendance scale we have!

ERNEST N. PROVETTI
President, Trinity Products, Inc.

Anything that might jeopardize the continuing popularity of the R/C hobby/sport needs to be addressed. You've read Mr. Provetti's opinion. What's your opinion? We'd like to know. CC

You Missed It!

I just got your May '88 issue of *Radio Control Car Action*. I've read it from cover to cover four times; it's great! I like your in-depth studies and reports with great pictures. I would like a report on the Dominator IV. Your magazine has made this hobby a lot easier for me.

BRIAN STEINMETZ
Clinton, OH

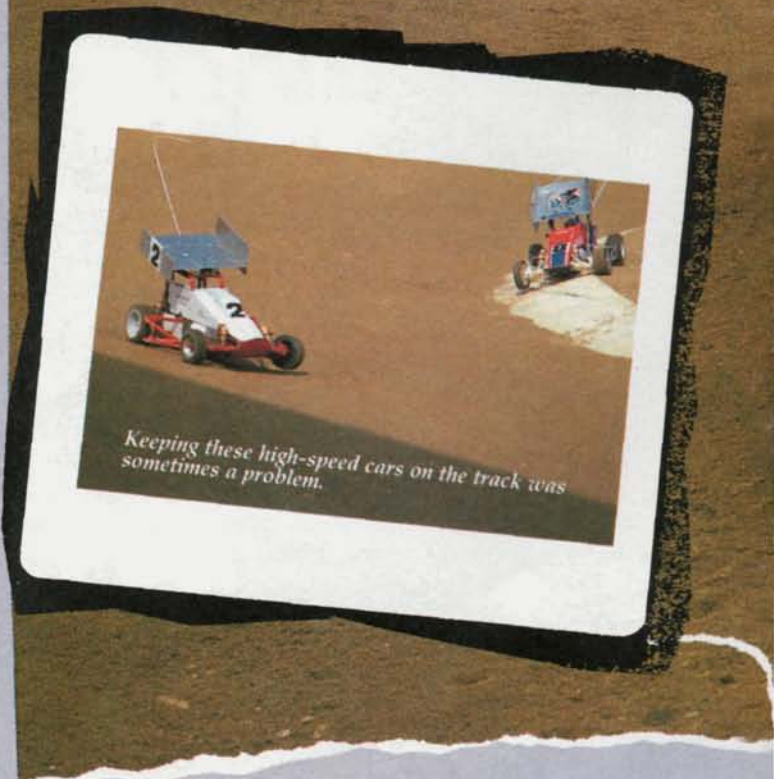
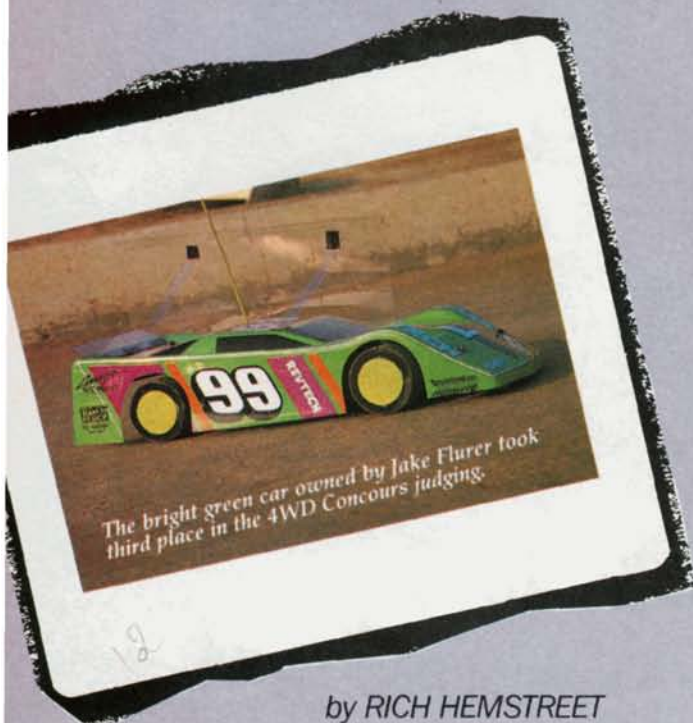
Brian, thanks for your support. The Dominator was covered in a complete track report in the Dec. '88 issue of RCCA. CC

We welcome your comments and suggestions. Letters should be addressed to "Letters," *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and brevity. We regret that, due to the tremendous number of letters we receive, we cannot respond to every one.

JG

DIRT OVAL CHAMPS

Dirt gladiators do battle in wacked-out wedge and winged-ride "chariots"?



by RICH HEMSTREET

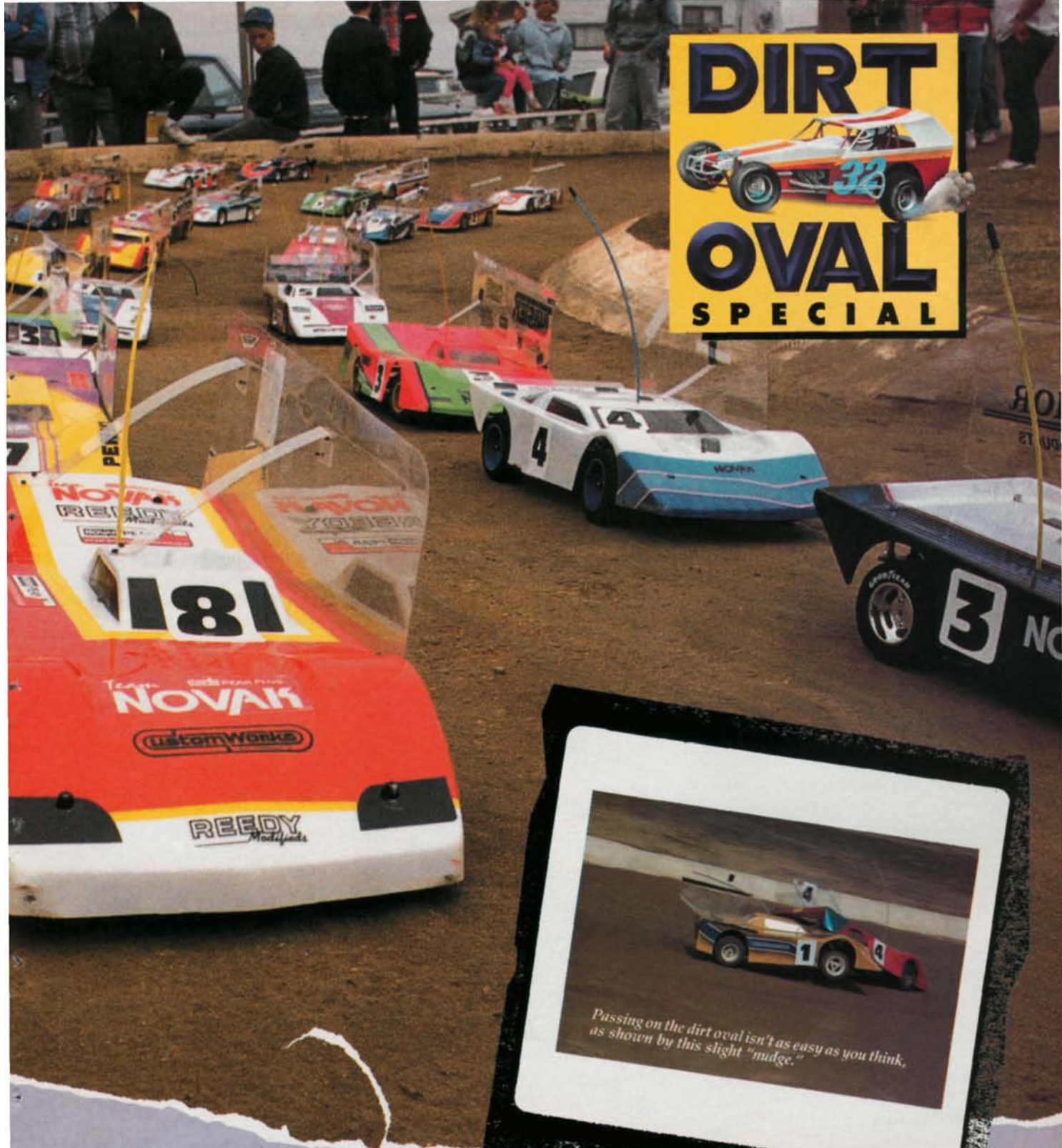
THE 5TH ANNUAL JG Dirt-Oval Championship—the most prestigious dirt-oval event in the country—was held this year at the Ranch Pit Shop* in Pomona, CA.

More than 200 entrants competed in the three classes. Stock-car bodies were required on cars in the 2WD and 4WD Classes, while the Outlaw Sprint-Car Class had to run metal roll cages and top wings. All three classes ran modified motors and 7-cell battery packs.

Each day's activity was divided into three parts: In the

mornings, the sprint cars ran their three heats; at 1 p.m., the 2WD cars took over the track; and later in the afternoon, the 4WD cars started racing. This format had several advantages. First, the track conditions didn't change drastically from one qualifying round to the next for any one class of cars. Second, there was more room in the pits, because every driver didn't have to be there all day. (Drivers could only enter two classes.) Third, the drivers were ready at the starting line for each heat, because they knew the time between their runs would be short. And finally, racers who ran two classes could concentrate on getting the most out of just one car at a time. The only complaint I heard about this

DIRT OVAL SPECIAL



system was that the race didn't feel like a major event, because there was so little congestion in the pits! We should all have such problems!

The Ranch Pit Shop dirt oval has mild banking in each corner. The clay surface was quite smooth at the start of the events, but a major hole eventually developed in the first turn. There was only just enough room for a car to run past the hole on the inside and still miss the concrete berm, so many drivers chose to run close to the center of the track in the first turn, and so miss the hole. On the morning

of the Mains, Gil Losi, Sr. had his maintenance crew fill the hole with a mixture of clay and concrete. It worked well and gave the drivers an excellent track to chase trophies on.

Scott Quillen was the top qualifier (TQ) in the Sprint-Car Class. Quillen drove a Big Boy Toys* RC 10, powered by a Team Losi* Revolution motor. John Peterson was the second-fastest qualifier with his Twister*-powered Ultima*.

JG OVAL CHAMPS

Peterson built his own Sprint-Car Conversion for the Ultima. Taking the third-fastest time was John Smith, driving an RCRC* RC 10 with an MIP* gearbox and a Twister motor. Martin Buchanan rounded out the top four with his Revtech*-powered, Big Boy Toys RC 10.

Scott Quillen was also TQ in the 2WD Class, driving a Revolution-powered RC 10. Gary Demory was the second fastest with a Reedy*-powered RC 10. Richard Stratton used a Checkpoint motor to propel his RC 10 to the third-fastest qualifying time. Gary Kyes drove one of the new Team Losi

JRX-2 cars to the fourth-fastest time.

The 4WD qualifying kept everyone guessing. Finally, Curtis Strawn took the TQ spot, driving a Custom Works* Dominator with a Premier Designs* motor. Eric Soderquist captured the second-fastest spot with his Twister-powered Dominator. Gary Kyes was third fastest, with a new Yokomo* C-4, and Davy May drove a Revtech-powered Dominator to the fourth qualifying spot.

The Sprint Car Concours went to Joe Cox of Bakersfield, CA. Joe MacGregor of Tastadiro, CA, won the 2WD Concours trophy, and body-builder Gary McAllister showed his artistic talent by winning the 4WD Concours honors.

The JG Oval Championships called for combining dual A Mains to determine the overall finishing places. Each driver's finishing positions in the Mains were added, and the driver with the *lowest* total was the winner. Ties were decided by looking at the total laps and times.

In the first Sprint-Car A Main, Cary Mendez, driving an RCRC RC 10 powered by a Twister motor, came from the sixth starting position to win. Ted McKay moved up from eighth place to finish second, and he then went on to win the second A Main, so becoming the JG Sprint-Car Champion. McKay ran a Revtech-powered Big Boy Toys RC 10. Mendez ended up second overall, with a fifth-place finish in the second Main, and Quillen finished third, with Smith close behind.

Quillen came back to win the 2WD Championship with a first and second in the two Mains, and Soderquist finished second overall, driving an RC 10. Demory finished third after winning the first Main, and Mendez, with his two fourth-place finishes, finished fourth overall with his RC 10.

The final championship was the 4WD Class—the fastest cars on the oval. It's hard to beat 4WD cars on a dirt surface, and Strawn was also hard to beat, finishing both Mains at the front of the pack for an undisputed JG Oval Championship. While Strawn's win was convincing, he did face a stiff challenge from Kyes, who earned two second-place finishes. Bob Novak finished third overall, with his Reedy*-powered Dominator, and Soderquist ended up in

(Continued on page 16)

Rubber Vs. Foam

THE JG OVAL DRIVERS tried just about every possible tire combination, but most of the A-Main drivers had very similar setups.

Both 2WD classes (Sprints and Stocks) showed a decided preference for Advance Engineering's Grand Prix tires on the rear. In fact, 16 out of the 20 A-Main cars used these tires.

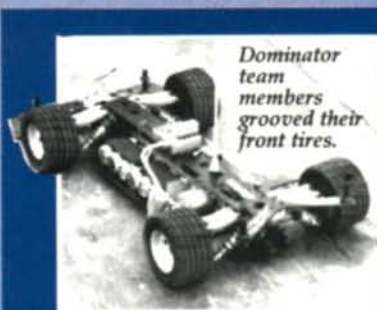
Most in the Sprint-Car Class used Pro Line tires up front; these tires balanced the steering to the rear traction. The 2WD stock cars used quite an assortment of front tires: Some drivers used foams up front to give the car a little *understeer*; others used ribbed or waffle front tires to *add* a little steering. Ron Rosetti and Ed Knowles did it *their* way: Rosetti used ProLine waffle rears on the front of his JRX-2. The tread design added steering, while the wider contact patch decreased steering response. Knowles used TRC foam tires on both the front and the rear of his Cox Turbo Scorpion. The car ran well alone on the track, but it seemed to lose out in any bumping match.

The ten 4WD A-Main cars ran foam tires on both front and rear, and I was surprised to see how well these tires worked on the cars. As previously mentioned, once again, Rosetti took a different approach. While his 2WD car used four rear tires, his 4WD car used four front (narrow) foam tires. (Gary Kyes also used this setup.) These narrow tires should give more traction than wider tires, because the weight of the car isn't spread over as large an area.

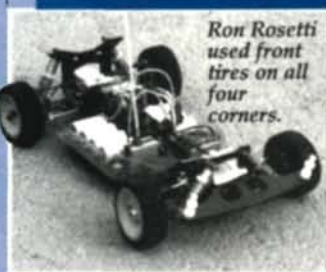
I asked a number of drivers if they thought the compound of the foam tires made any difference. In most cases, the drivers said they didn't know, because they'd only tried one set of foam tires and were satisfied with their initial performance. Then I asked Jerry Landgraff, owner of Custom Works and manufacturer of the Dominator. He

candidly said that the compound was important, and that generally, softer tires will work best. He also said it's important to slice the tires with a hobby knife. I saw slices cut around, across and diagonally on tires to increase their flexibility. You should probably experiment with different directions and depths of slices to see what works best for you. Landgraff predicted that we'll see more and more cars running foam tires on dirt.

I hope these tire tips from the JG Oval will help you to start winning on your local dirt-oval track. ■



Dominator team members grooved their front tires.



Ron Rosetti used front tires on all four corners.



Rosetti's JRX2 used four rear tires.

SPRINT-CAR A MAINS

Finish	Name	1st	2nd	Qual.	Car	Motor	Speed Controller	Front Tires	Rear Tires
1	Ted McKay	2	1	8	Big Boy Toys RC 10	Revtech	Airtronics	MRP ribbed	Advance Grand Prix
2	Cary Mendez	1	5	6	RCRC RC 10	Twister	Tekin	ProLine	ProLine
3	Scott Quillen	4	2	1	Big Boy Toys RC 10	Revolution	Novak	ProLine	Advance Grand Prix
4	John Smith	3	4	3	RCRC MIP RC 10	Twister	Novak	ProLine	Advance Grand Prix
5	Greg Dee	5	6	5	Big Boy Toys RC 10	Twister	Novak	Mojave	Advance Grand Prix
6	Bob Chadeanye	10	3	7	RCRC RC 10	Twister	Tekin	ProLine	Advance Grand Prix
7	Joe Cox	7	7	10	Big Boy Toys RC 10	Revtech	Tekin	ProLine	Advance Grand Prix
8	Gil Losi, Sr.	6	9	9	Big Boy Toys RC 10	Revolution	Novak	ProLine—Right Foam—Left	Advance Grand Prix
9	Martin Buchanan	9	8	4	Big Boy Toys RC 10	Revtech	Novak	ProLine	Tamiya
10	John Peterson	8	10	2	Ultima	Twister	Victor	ProLine	Advance Grand Prix



TWO-WHEEL-DRIVE A MAINS

Finish	Name	1st	2nd	Qual.	Chassis	Motor	Speed Controller	Front Tires	Rear Tires	Body
1	Scott Quillen	2	1	1	RC 10	Revolution	Novak	MRP ribbed	Advance Grand Prix	Andy's
2	Erik Soderquist	3	2	5	RC 10	Twister	Novak	ProLine	Advance Grand Prix	Associated
3	Gary Demory	1	5	2	RC 10	Reedy	Novak	BoLINK foam	Advance Grand Prix	Associated
4	Cary Mendez	4	4	8	RC 10	Twister	Novak	ProLine	ProLine	JG
5	Richard Stratton	8	3	3	RC 10	Checkpoint	Novak	TRC foam	Advance Grand Prix	Andy's
6	Bill Carter	6	6	7	Home-built	Revolution	Novak	Losi foam	Advance Grand Prix	Andy's
7	Jack Johnson	7	8	9	JRX-2	Revolution	Novak	ProLine waffle	Advance Grand Prix	Andy's
8	Ed Knowles	5	10	10	Turbo Scorp.	Twister	Victor	TRC foam	TRC foam	JG
9	Ron Rosetti	10	7	6	JRX-2	Revolution	Novak	ProLine rear waffle	Advance Grand Prix	Andy's
10	Gary Kyes	9	9	4	JRX-2	Revolution	Novak	Cox ribbed	Advance Grand Prix	Andy's



FOUR-WHEEL-DRIVE A MAINS

Finish	Name	1st	2nd	Qual.	Chassis	Motor	Speed Controller	Front Tires	Rear Tires	Body
1	Curtis Strawn	1	1	1	Dominator	Premier Designs	Novak	TRC	TRC	Premier
2	Gary Kyes	2	2	3	Yokomo C-4	Revolution	Novak	Losi Qualifier	Losi Qualifier	Andy's
3	Bob Novak	4	6	5	Dominator	Reedy	Novak	TRC	TRC	Premier
4	Erik Soderquist	5	5	2	Dominator	Twister	Novak	Wescott	Wescott	Andy's
5	Martin Buchanan	8	3	8	Dominator	Revtech	Novak	Custom Works	Custom Works	Dominator
6	Ron Rosetti	3	10	7	Yokomo C-4	Revolution	Novak	Losi Qualifier	Losi Qualifier	Andy's
7	Paul Pat	10	4	9	Dominator	Revtech	Novak	Foam	Foam	Dominator
8	Tony Rosetti	7	8	10	Dominator	Twister	Novak	BoLINK	BoLINK	Andy's
9	Dave May	6	9	4	Dominator	Revtech	Novak	Custom Works	Custom Works	Dominator
10	Warren Darby	9	7	6	Dominator	Revtech	Novak	Custom Works	Custom Works	Dominator



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List \$79.95 SALE \$49.95



NEW!

1400 mA 8.4V
7 Cell "Matched Cell" Pack
#11624

INDY SPC. - \$29.95

INDY SPECIAL!

**DELTA PEAK
DETECTION
CHARGER**

Mo. HQ-325 DC-DC Quick Charger • w/Auto Shut-Off
• 12V DC 6 amp Power Source • Pulse Current Adjust -
1-4 amps • 26.5 x 33.5 x 15.5 mm - only 64g!
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BATTERIES ROAR APPROVED!

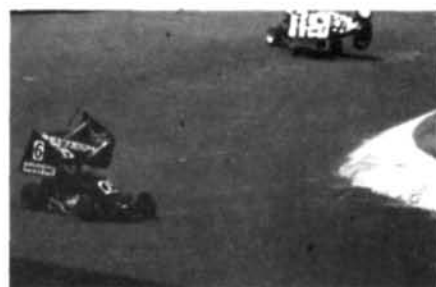
Gates/GEMax "matched cell" battery packs are built with leading edge Sub-C technology.

#21335 Camel Back 7.2 V 1400 mA Pack	\$18.95
#SEP11 2 Hump Packs for	\$33.95
or		
#21467 Flat 7.2 V 1400 mA Racing Pack	\$21.95
#SEP12 2 Flat Racing Packs for	\$39.00

TAMIYA

R/C CARS	Retail	INDY
22644 RA5841 Frog	165.70	\$117.50
23108 RA5843 Grasshopper	88.00	\$62.95
23603 RA5845 Hornet	118.40	\$84.95
23333 RA5848 Bruiser	394.60	\$274.95
10065 RA5850 Wild One	202.15	\$144.95
22641 RA5851 The Fox	194.30	\$132.95
22558 RA5842 Porsche 956	205.20	\$144.95
10066 RA5849 Toyota Toms	164.40	\$116.95
10067 RA5852 Newman Porsche	164.40	\$116.95
22713 RA5854 SuperShot	330.20	\$229.95
10068 RA5853 Road Wizard	146.29	\$104.95
23101 RA5855 Boomerang	192.70	\$136.95
22628 RA5456 The Falcon	140.55	\$99.95
22648 RA5857 BigWig	320.75	\$224.95
22529 RC5858 Blackfoot	125.00	\$89.95
22560 RC5859 Porsche 959	294.50	\$210.00
22631 RA5860 Monster Beetle	178.60	\$129.95
22346 RB5861 Striker	116.25	\$92.00
23604 RA5862 Hot Shot II (4WD)	224.95	\$164.95
22830 RB5863 Lunch Box	116.75	\$85.00
10069 RA5864 Tyta Celica Rally	299.95	\$213.95
23334 RA5865 Clod Buster (4WD)	305.00	\$218.95
10070 RA5866 Super Sabre	202.95	\$144.95
10071 RA5867 Thundershot	189.95	\$134.95
23606 RA5868 Lotus Honda 99T	154.95	\$112.95
23605 RA5869 Williams Honda F-1	154.95	\$112.95
24360 RA5870 Midnight Pumpkin	144.95	\$104.95
11628 NEW!! Avante w/motor	469.95	\$328.95
11629 NEW!! Avante w/o motor	415.95	\$289.95
11630 NEW!! Thunder Dragon	179.95	\$124.95

JG OVAL CHAMPS



As you can see in the background, at these high speeds, one small mistake can spell disaster and a lost race.



A useful dirt-oval tactic: Dog the leader until he makes a mistake!

fourth place by finishing fifth in each A Main.

The 5th Annual JG Oval was a well-run event. All the cars had to be teched before and after each event they ran, and this is a good way to prevent drivers from taking liberties with the rules. More races should be run according to this policy.

If you're into dirt-oval racing, you should try to make it to the 6th Annual JG Oval that will probably be held in the spring of 1989! This is the race where you prove you're the King of the Hill!

*Here are the addresses of the companies mentioned in this article:

Ranch Pit Shop, 1655 E. Mission Blvd., Pomona, CA 91766.

Big Boy Toys, 4408 Moscatto Way, Bakersfield, CA 93306.

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Twister Motors, 657 E. Arrow Hwy., Suite H, Glendora, CA 91740.

Ultima; distributed by Great Planes Model Distributor, 1608 Interstate Dr., P.O. Box 4021, Champaign, IL 61820.

Radio Control Race Center (RCRC), 18240 S. Vermont Ave., Gardena, CA 90247.

MIP, 838 Edna Pl., Covina, CA 91723.

Revtech R/C Products, 7401 White Ln., #19, Bakersfield, CA 93309.

Reedy, 3585 Cadillac Ave., Costa Mesa, CA 92626.

Custom Works R/C Products, 3720 Easton Dr., Suite 6, Bakersfield, CA 93309.

Premier Designs, 961 Union Ave., Costa Mesa, CA 92627.

Yokomo; distributed by RPS Distributing, 1655 E. Mission Blvd., Pomona, CA 91766. ■



The Inside Scoop

by CHRIS CHIANELLI

THE R/C CAR industry is rapidly advancing, with new products being offered at a head-spinning rate. So, I'll make manufacturers nervous, but feed you R/C squirrels who are hungry for info, by bringing you a special report on security leaks and "late-in" items. Here goes!

FLASH! TRINITY TAKES TULSA!

BOB WHITE places first with a Lynx Predator! This high-speed ride was powered by the new Trinity Two Stage[®], wet-magnet, modified motor. I've heard that Joel "Martyr"—I mean "Magic"—Johnson placed fourth. As Joel put it, "I would have done better, but I had to manage, coach, serve food to and generally wet-nurse the rest of the team all by myself." For your sacrifices, I think Trinity should send you, and a companion, on an all-expenses-paid two-week vacation to the West Indies, Joel... Well, maybe not!

* * *



ASTRO 05 TURBO

BOB BOUCHER of Astro Flight Inc. says: "Astro is preparing to enter the ROAR racing market. We intend to build the *best* racing motors

that the world has ever seen and to offer them at a price that all ROAR members can afford. We will make our new motors available to ROAR members through all possible avenues of distribution. We intend to live up to the spirit and intent of the original ROAR rules that we helped to formulate over a decade ago. We at Astro are going to build *absolutely* the *best* motor that we know how to make within the ROAR \$80 retail price limit. Our goal is to make our Astro Turbo 05 the standard of the industry—the standard of excellence to which all other motors will be compared.

"Every motor is dyno-tested, and no motor is shipped if it doesn't meet our rigorous standards. In the first batch of these turbo motors, we found that the variation in speed was about plus or minus one percent. This means that all racers will be treated as equals. There will not be a situation where some favorite drivers always seem to get the fastest motors. They won't have to wonder which Astro motor is the best motor, because *every* motor will be the *best*!"

It sounds as though Astro is committed to the 05 Turbo program; I wish them the very best of luck in the racing world.

* * *



ADVANCED LOSES WEIGHT!

RALPH KULIN, the head honcho at Advanced, has informed me that all three versions of the 1/10-scale Advanced Draggins—the Funnycar, the Pro-stock and the Rail—will soon be available with graphite composite chassis, nylon wheels, sponge tires and other weight-losing components. The net loss will be between 10 and 15 ounces, depending on which car you get... nice gain... a loss! I mean, good job; yea, that's what I mean! *Good job!*

* * *



BoLINK'S LOW-COEFFICIENT
OLDS '88

LOW-DRAG coefficient is what we're talking about here. The Oldsmobile '88 is extremely aerodynamic, and BoLINK

2WD ROYAL CRUSHER

ROYAL PRODUCTS of Denver, CO, has introduced its new 1/10-scale 2WD, 4WS, Monster Truck—the Crusher. Features include: twin-wishbone suspension, extra-heavy-duty ball-link tie rods, ABS resin frame and a three-step-forward-and-reverse speed control with silver contacts. We'll check this one out as soon as we can.

* * *

sales and marketing person, Kerry Johnson says, "This body may outperform the 50mph '88 Pontiac in speed records." We'll be waiting for Whippoorwill!

* * *

Keeping the industry BUGGED, I'll see you next time—or sooner, if I catch you in my spyglass!

CC

Track Report

Avante

by RYAN FITZ



FOR SOME years, competitive R/C car racing has been

Tamiya Stakes Its Claim!



dominated
everywhere by a
few big names—but one name
has been notably absent. Tamiya* is the
name, and R/C is a big part of its game.



Photos by Steve Pond.



Avante

MRC/TAMIYA



AVANTE

Type 4WD off-road
Scale 1/10

DIMENSIONS:
Overall Length 16 1/4 inches
Width 9 1/2 inches
Wheelbase 10 1/4 inches
Front Track 7 3/4 inches
Rear Track 7 3/4 inches

WEIGHT:
Gross (w/rec. bat.) 3 lbs, 12 1/2 ozs.
Balance (f/r) 35/65

BODY:
Type Aerodynamic buggy w/undercowl
Material Lexan

CHASSIS:
Type Double plate
Material Fiberglass composite

DRIVE TRAIN:
Type (prim./sec.) Spur gear/Shaft
Differential Center ball-type

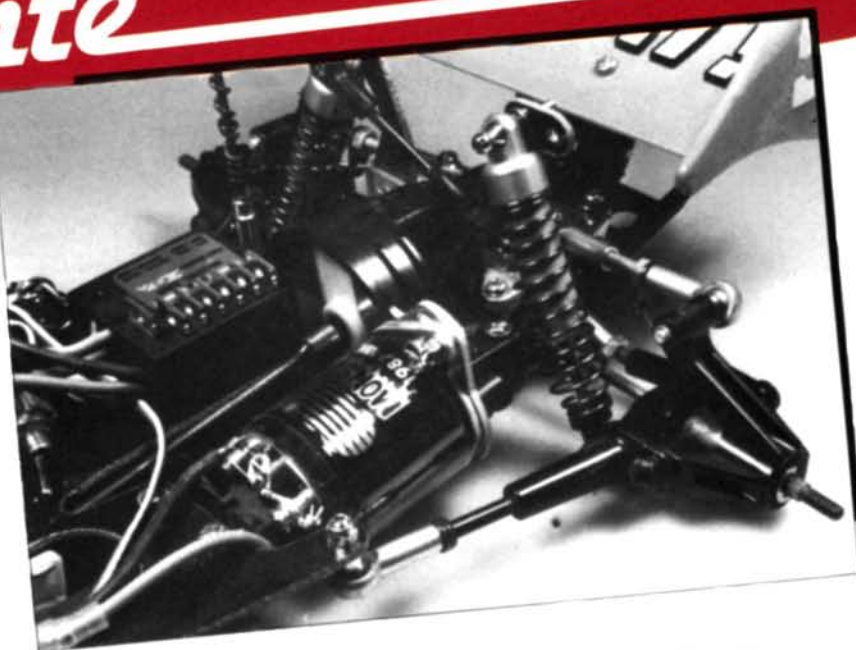
SUSPENSION:
Front: Type Double-wishbone
Dampening Oil-filled/Coil-over
Rear: Type Double-wishbone
Dampening Oil-filled/Coil-over

TIRES:
Front Low-profile pin-spoke
Rear Low-profile pin-spoke

ELECTRICAL:
Motor RX-540VZ Technigold
Bearing Type Ball bearing
Battery Required 6-cell racing pack

OPTIONS AS TESTED:
PDI Pro-Micro Zeta speed controller, Trinity No. 2002 Modified motor, Futaba Magnum Junior radio.

COMMENTS:
The Avante is a very forgiving performer that steers well under power. A heavier sway bar and stronger rod-end shafts will help greatly. Tamiya has done its homework with this top-of-the-line racer.

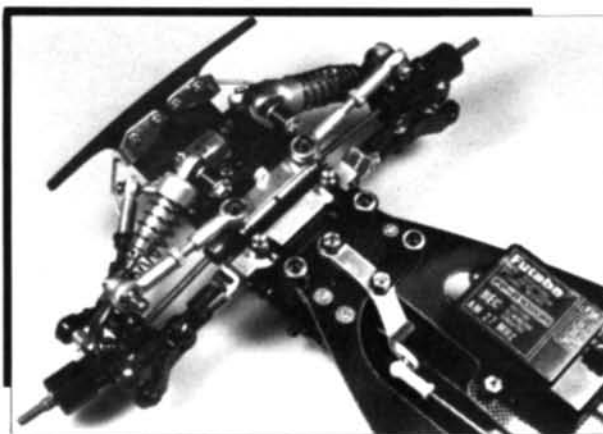


Ball-links coupled with oil-filled shocks make up the Avante's rear suspension.

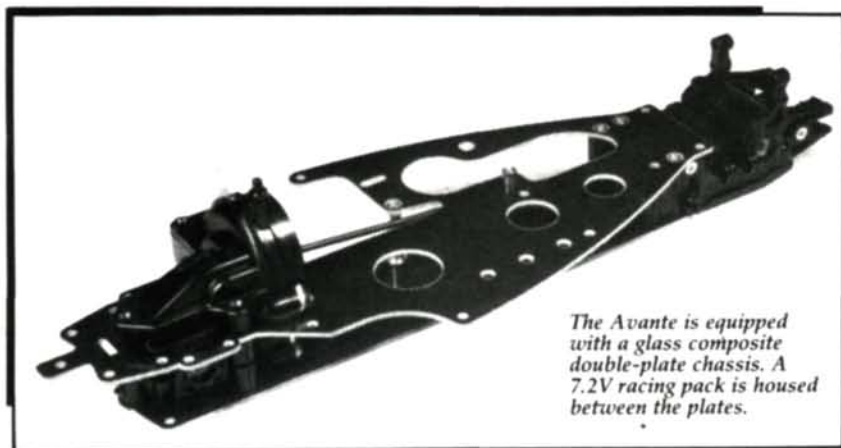
Tamiya has given us many entry-level and intermediate-level cars, but many have asked, "Why doesn't Tamiya spend as much time designing a world-class competition car as it spends on figuring out yet another way to market the Hotshot?"

That question may now have an answer with Tamiya's latest all-out car—the "Avante." The Avante is the newest 1/10-scale 4WD off-road racer to hit the track, and performance is designed to be the key element. It's a shaft-driven full-time 4WD mid-engine racer that comes in kit form. The kit provides a lower-deck glass composite chassis plate on which to mount the front and rear drive assemblies and the battery pack. A second glass composite plate forms the upper deck; this adds strength to the chassis and accommodates the radio equipment. The front suspension is a lower A-arm with upper link, and the rear suspension consists of upper and lower links with trailing arms, dampened with coil-over oil-filled shocks on all four corners.

Standard equipment that's included with the Avante is the RX-540VZ Technigold motor. This is mounted midship to provide the race-proven mid-motor weight distribution that's so prevalent in today's racing. The power of the Avante is transferred to the front and rear differentials through a center ball-type differential, and all ball bearings—and I mean *all* ball bearings!—



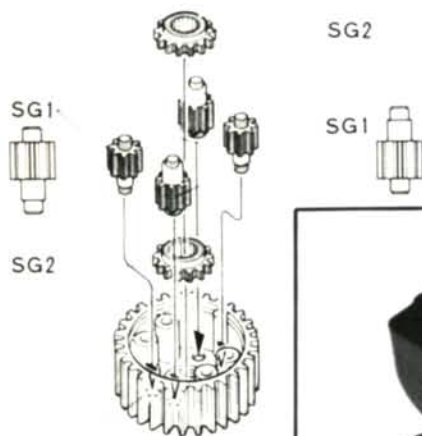
The front-end assembly looks complicated, but it provides a very flexible setup. Completely adjustable to any track condition.



The Avante is equipped with a glass composite double-plate chassis. A 7.2V racing pack is housed between the plates.

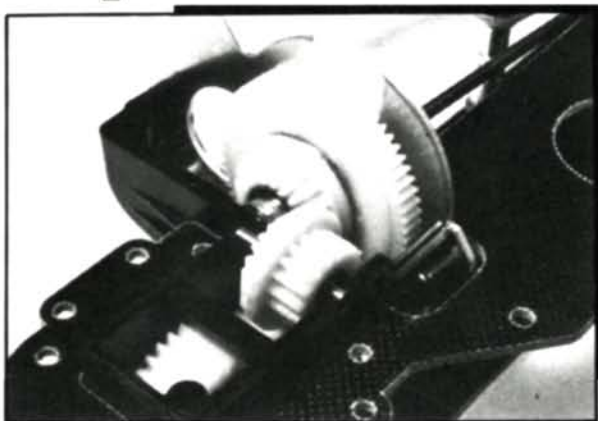
are included (18, to be exact)! There isn't a moving part on the Avante that doesn't have a ball bearing somewhere!

The tires are the low-profile pin-spoke semi-pneumatic type mounted on lightweight one-piece rims and held in place by a unique set of wheel caps that also act as dust covers to prevent the wheels from picking up dirt in the worst off-road conditions. The only thing you have to add is your choice of radio system, an



Exploded view of the complex spur gears. Both the front and rear gearboxes have one.

A center-mounted ball differential transfers power to the Avante's 4WD system.



electronic speed control and a 7.2V racing pack.

The assembled Avante has a polycarbonate body, and the undercarriage is sealed with a polycarbonate undercow/skidplate. Also included is a fully adjustable Lexan wing for fine-tuning the car's handling.

The Avante drive train houses the front and rear differential spur gears, and these house a complex-looking assembly of four 8-tooth pinion gears and two 14-tooth ring gears in each spur gear. The assembly is easy and the Avante has the necessary smooth differential action. The appropriate assemblies (complete with ball bearings!) are housed in their gearboxes with a counter-gear (again, well-equipped with ball bearings!). This complexity seems to be directed toward reducing the side load associated with the beveled gears in shaft-drive cars. The speed of the Avante is strong evidence that this is, in fact, the case.

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AND RUN SMOOTH
WITH HIGH-QUALITY**

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DuraTrax Ball Bearings fit almost every leading buggy

Available in handy 6-packs in 5 x 11mm sizes to fit Tamiya cars, 5 x 10mm sizes to fit Kyosho buggies, DuraTrax Ball Bearings also come in complete sets to soup-up your favorite Tamiya, Marui, or Futaba buggy. Whether you're a new driver wanting more out of your FX10, a Big Bear monster trucker, or a serious racer with a Thundershot on the starting line, a set of top-quality 100% stainless steel DuraTrax Ball Bearings is sure to improve your buggy's performance. Before your next appearance at the track, ask your local R/C car retailer about the best set of DuraTrax Ball Bearings for your buggy.

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GREAT PLANS

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**WORLD
ENGINES INC.**

MERCURY Xi-4 4WD



Designed for competition! RS-540 motor! Low profile pin spike tires! Independent double wishbone suspension! Unique 3 differential / 2 belt drive system! Independent adjustable shocks! Monocoupe frame!

Mercury Xi-4 4WD - 10102

ROCKBUSTER RIC CARS



Original Version - 1/10 scale designed for the entry level driver. Features a RS-380 motor, rear differential, soft rubber tires, 3 speed forward/3 speed reverse speed controller. Requires a 2 channel radio, and a hump battery pack to run (not included).

KIT - 21331 85% Assembled - 21343
Optional Heavy Duty Suspension - 21713



Hopped-Up Version - Same basic design as Original Rockbuster but comes with a RS-540 motor, new suspension, bigger tires and hubs. Designed for competition.

KIT - 21772 85% Assembled - 21719

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Mo. HQ-325 DC-DC Quick Charger • w/Auto Shut-Off • 12V DC 6 amp Power Source • Pulse Current Adjust - 1-4 amps • 26.5 x 33.5 x 15.5 mm - only 64g!

Peak Detection Charger - 11625

Call for a complete parts list for Rockbuster cars.
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Avante



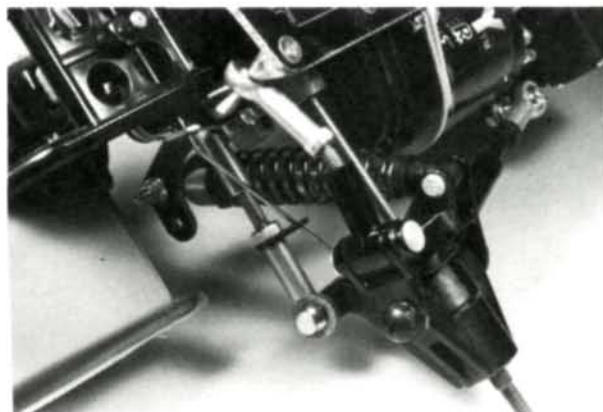
Rocker-arm and radius-arm protector is designed to help soften any impact. A positive step in the new Tamiya design.

The entire drive assembly is driven by a combination drive gear/ball differential that's fully adjustable to provide front-to-rear differential tension for any racing condition. The nice thing about the Avante's gear assemblies is that, even though both the front and rear gearboxes appear to be completely enclosed, there's an inspection plate that enables you to gain access to both gearboxes quickly if need be. This is a great feature that's the result of good planning by the manufacturer.

The front and rear suspension-arm assemblies are fully adjustable, using 8mm threaded-aluminum Hiem-type ball ends on 4mm threaded-aluminum shafts. This design makes the Avante the most adjustable out-of-the-box car I've come in contact with. The rear suspension consists of a trailing arm, with an upper and lower link allowing as much camber adjustment as you need.

The front and rear are equipped with stabilizer bars, but I question the effectiveness of these, as they're definitely undersize. If the stabilizers had a slightly larger diameter, they would perform much more effectively.

As with all Tamiya products, the assembly instructions are very well illustrated and easy to follow, but I'd like more



Note the bent aluminum rod. This is a weak point that should be strengthened. A heavier sway bar is also in order.

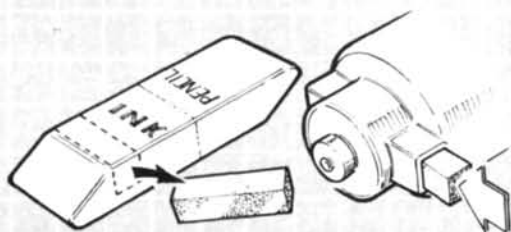
technical data on setting up the car for racing. The Avante is by no means an entry-level car, and it's sufficiently well engineered for advanced racers, but even advanced racers can use some helpful advice when it comes to setting the suspension of this unique car. The Avante is very adjustable, but more information from the manufacturer can help us to gain a better understanding of the theories behind the design of the car.

The car needed a radio system and a speed control. I also elected to install a Trinity* No. 2002 Sprint modified motor for the Modified-Class race that I entered at a local race track. I chose a Futaba* Magnum Junior radio system and a PDI* computerized Pro-Zeta speed control. The PDI speed control was featured in the "Scoping Out" column of the July '88 issue of *Radio Control*

(Continued on page 42)

Pit Tips

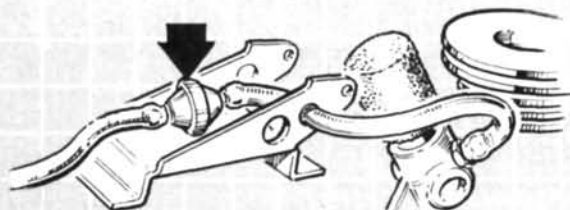
by JIM NEWMAN



COMMUTATOR CLEANER

Measure your commutator brushes, then cut a piece the same size from a regular ink eraser. Push this into the brush housing until it bears firmly against the commutator. Rotate the armature until the commutator is brightly polished. Cut a piece from the pencil end of the eraser and use it for final burnishing of the copper segments.

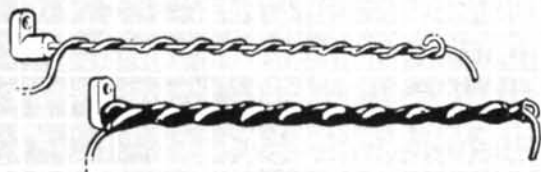
Chuck Pfahler, Cincinnati, OH



ASSAULT FUEL FILTER

The neatest place for a fuel filter on the Assault is between the wing supports, after first cutting the fuel line. In this position, the filter is easily accessible for cleaning, but it's also protected. (The arrow shows the filter.) This will probably work on many other gas-powered cars, too.

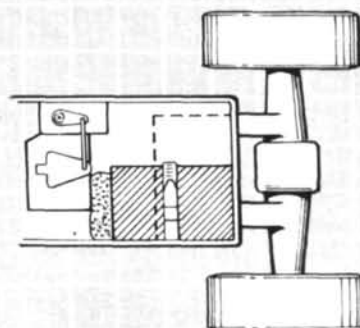
Simeon Rombough, APO, NY



TIDY ANTENNA

If you have a rigid, anti-roll-over-type "antenna" on your car, you can coil the receiver antenna wire around it as shown, then encapsulate it in heat-shrink tube for that neat and tidy look.

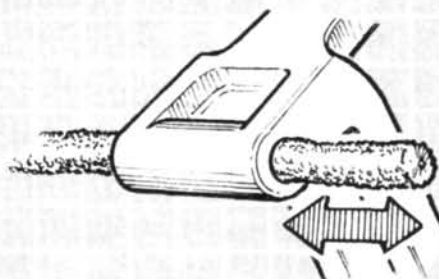
Craig Cooper, Miami, FL



OVAL RACER

If you like to race your Grasshopper on an oval track, consider this modification: Move the AA battery holder so that it lies up against the left side of the chassis as shown. (The original position is shown dotted.) Drill a small hole in the side of the chassis and use a cable tie to keep the box in position. Place a block of sponge rubber in front of the box to protect it and the speed controller from impact. This new mounting position gives a weight bias to the left side for improved cornering on an all-left-turn circuit.

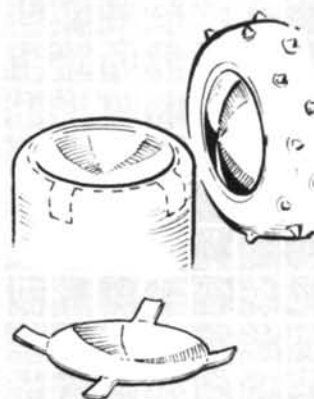
Taylor Alman, Suffolk, VA



PIVOT CLEAN-UP

To really clean your car after a dusty race weekend, use a pipe cleaner to get all that grit out of the suspension pivots. Dip the cleaner in alcohol to remove stubborn dirt.

Norman Deschaine, Windsor, Ontario, Canada



ALUMINUM HUB CAPS

Cut the bottom from aluminum pop cans. Mark and trim the domed bottoms, as shown, so that they fit your wheel rims. Note the four tabs that are folded to fit inside the rim so they can be lightly glued with a smear of tub sealant.

Charles Borromeo, Sinjiana, Guam.

Radio Control Car Action will give a free one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send rough sketch to Jim Newman, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO, AND NOTE YOU SUBMIT. Because of the number of ideas we receive, we cannot acknowledge each one, nor can we return unused material.

Track Report

McALLISTER RACING



ONE-TENTH

OUTLAW



This bird's-eye view of the completed McAllister Outlaw shows you what one of these cars can look like when you put some time into it.



by ERIC GOLDSCHRAFE

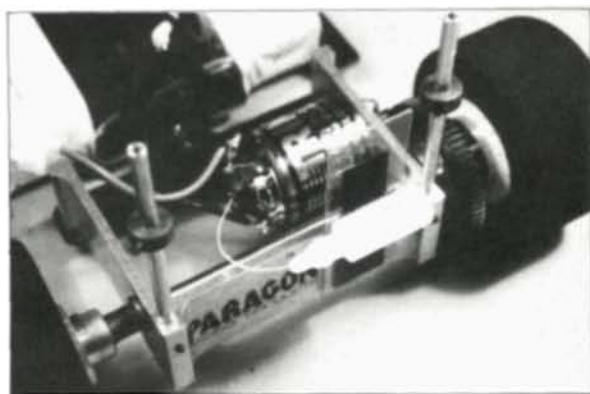
THE FIRST TIME you look at one of these cars, you might not recognize it for what it is, as nearly all contemporary flat-track racers have similar designs. The reinforced-fiberglass-sheet chassis and general layout are a standardized, simple, reliable way to put the power to the pavement and make the car go around corners.

McAllister Racing* has taken this basic concept, developed during years of racing experience, and produced its MX-1 chas-

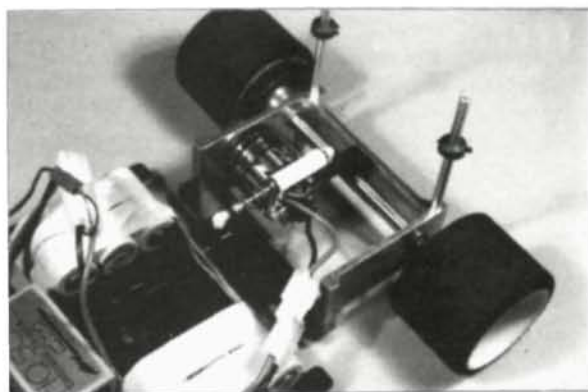
sis with some unique features and quality hardware. The Outlaw has been designed for easy construction and maintenance, and it has great maneuverability and durability built in. Even though the Outlaw is a good entry-level car for pavement/carpet racing, its state-of-the-art coil-spring front suspension with adjustable caster and floating rear T-section with shock absorber make this chassis a challenge for any competitor. A fully adjustable limited-slip differential and a set of quality wheels and tires top off this slick package.

As with most cars of this type, you'll need to supply your own radio equipment, speed control and battery pack. This kit doesn't include a motor, and if you're new to this type of racing, McAllister recommends a stock-type powerplant. A modified motor will turn this thing into a real rocket! A nice 1/10-scale late-model stocker Firebird body is provided, and it's molded to the usual excellent McAllister standards. You'll need a screwdriver, some Allen wrenches and a hobby knife. An inexpensive nut-driver set or a quarter-inch socket set will make things really easy. You'll also need thread-locking compound,

contact cement and servo tape, as well as masking tape and paint for the body. An electric drill would come in handy for drilling the 3/32-inch holes through the body-mounting posts, but a pin vise will work well, too.



The Paragon Turbo Pac was used with the Trinity stock motor to ensure longer life, higher speed and extended run times.



The Outlaw is shown here with a 6-cell saddle pack and a Robart HQ 505 electronic throttle.

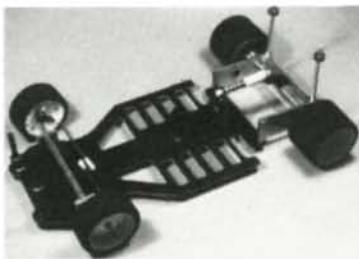
OUTLAW



The front end features coil-sprung kingpin suspension and a solid aluminum front axle with adjustable camber.

Since the kit is really quite straightforward and the instructions are simple and clear, a step-by-step account of the construction would be redundant here. I'll just say that the car in this review was easily assembled by a 12-year-old in one afternoon. The quality hardware and pre-fabricated parts make for hassle-free construction, and the car goes together exactly as the instructions say it will.

Loctite* thread-locking compound was used wherever screws hold in metal parts, e.g., the rear-end assembly and the front-end mounting blocks. Loctite contact cement was used in the assembly of the wheels and tires, which were subsequently tried to eliminate wheel-hop. Loctite makes many useful products for R/C cars: a variety of cements, silicone sealants, plastic cleaners, and cleaning and lubricating sprays. Keep Loctite Weld cold-weld bonding compound and Form-A-Thread in your tool box. The cold-welding compound will work on most metals (as well as on some other materials), and it sets in 15 minutes. It will fix a leaking oil pan on a race car (I've seen it done), and it just might save you from disappointment and disaster if something breaks on your R/C car on race day.



The assembled chassis, sans electronics, is as simple as they come, but it's competitive.

The Form-A-Thread kit is great for repairing stripped or damaged screw threads in metal parts, and the applications should be obvious to any model builder.

As well as providing us with all these goodies, Loctite is active in all forms of full-scale racing, often providing a much-needed sponsorship. Loctite's Chris Abate has been extremely cooperative in helping us to forge links with the world of full-scale racing, and with his help, we've even made it into the pits a few times!

We chose the Futaba* FP-2PKA pistol-grip radio, and it was tried with several electronic speed controls as part of our "Scoping Out" evaluations for Rudy Meyer's column. We use a Trinity* Monster Horsepower stock motor, and this provides plenty of power for competitive racing. The ball diff works smoothly, and as well as using the tires and wheels that came with the kit, we tried a few other types and compounds just to see what would happen. Your choice will depend on your usual track surface and how you have the car set up; unless you have a "hot" combination, you'll have to do a little experimenting.

The Outlaw was easy to drive and dial-in to the track; the setscrew-adjustable caster setting lets you make quick changes to get quickly race-prepped, and a transmitter with variable steering rates will get you hot-lapping right away. The car stays glued to the track, and it can be set up to accommodate any driving style. The chassis works well, and the adjustments don't

change as the car is run, so your lap times are consistent. We'll be racing this car competitively, and we'll give a report on how it stacks up against the rest of the flat-track road-burners.

When the car had been run for a while,

McALLISTER RACING



OUTLAW STOCKER

Type On-road
Scale 1/10

DIMENSIONS:

Overall Length 19 7/8 inches
Width 9 inches
Height 5 inches
Wheelbase 10 1/2 inches
Front Track 8 1/2 inches
Rear Track 8 7/8 inches

WEIGHT:

Gross (w/rec. bat.) 3 pounds
Balance (f/r) 45/55

BODY:

Type Firebird
Material Lexan

CHASSIS:

Type Plate
Material Fiberglass

DRIVE TRAIN:

Type Spur gear
Differential(s) Ball

SUSPENSION:

Front: Type King-pin
Dampening Coil-spring
Rear: Type T-plate
Dampening Mono-shock

WHEELS:

Front: Type One-piece plastic
Dim. (DxW) 2x1 1/2 inches
Rear: Type One-piece plastic
Dim. (DxW) 2x2 inches

TIRES:

Front Foam
Rear Foam

ELECTRICAL:

Motor Not included
Battery Required 6- to 7-cell saddle pack

OPTIONS AS TESTED:

Trinity Stock motor; Robart 505 speed control; Futaba Magnum Junior radio.

COMMENTS:

Unlike many other on-road kits, the Outlaw doesn't require any extra cutting, filing or machining during assembly. Assembly follows instructions very well. Good high-performance entry-level car.

(Continued on page 108)

RADIO CONTROL

ELECTRIC

FAST BOATS

by CHRIS CHIANELLI

WHAT IF I TOLD YOU that all the support hardware you have for your R/C cars just *doubled* in value? You'd probably say, "You're a nut!" and that might be true. Yet, in a very practical way, that's exactly what's happened. Radios, speed controllers (mechanical and electronic), batteries, chargers and all those "hot" motors are precisely what you need to get in on the "rooster-tailed action"—R/C boats!

The boats pictured here—the Hobby Lobby* Electro-Vee and the MRP* Unlimited Hydro—are two examples. Just like its full-scale counterpart, the 28½-inch offshore Electro-Vee is most at home when cutting its way through a chop with its deep-vee hull. "Loose Ends," the Electro-Vee built and named by our Technical Editor, Rich (King Ura) Uravitch, is powered by a LeMans 240SB motor and fed by a Kyosho* 6-cell pack going through a BoLINK* wiper speed controller. The King keeps his rough-

water ride going in the desired direction with a Hobby Shack* Baja 250 two-stick radio. (We wanted to get pictures of Louis—the "Ayatollah of Radio Controlla"—DeFrancesco's boat, the "Abuse Master." *Only* the Ayatollah is allowed to run two motors, but he always crashes, as he gets distracted by the girls on the beach. His next machine is called the "Abuse Master VII.") Anyway, the Hobby Lobby Electro-Vee is the perfect boat for a first stab at wave-jumping. It's fast, it handles well and it comes with everything except a radio and a battery. Incidentally, the Vee also comes with a surface-drive propulsion unit, which is far superior to an underwater propeller setup.

The yellow *Radio Control Car Action* Unlimited Hydro you see flying over the "liquid track" is powered by nothing more than two MRP stock motors driving a single surface prop. As you can see, this boat is already "on the ragged edge." We're going to add two modified motors, and it will then be dubbed, "Wild Thing." The hydro uses a PDI* Zeta, which can handle two 7-cell packs, as can the Robart HQ 500.

Photos by Steve Pond



You already have the goodies, just add water!



Photo by Rich Urawitch

The fast-boat market offerings are increasing as you read this. The Unlimited Hydro is the fastest, and the MRP boat is the fastest electric we've tested. However, it's a little shy on duration. Hydros lose it in choppy conditions, and that's where deep-vee boats, like the Loose End, shine—easily jumping waves.

The hobby is definitely becoming more diversified. Hobby Lobby will introduce a model of the all-black Systems boat—an off-shore catamaran with a new twin-motor monster drive—and also a high-speed modified vee (the Cobra) with a wing for stability. Parma* has a new modified vee (the Ski Tiger) and Robbe* will soon introduce a twin-motor, twin-prop, surface-drive Scarab deep-vee. There are even several tunnel hulls on the horizon. No one will be bored!

Not only are there more boats available now, but more manufacturers are jumping on the after-market bandwagon. Just as you dial-in a 1/10-scale car, on these boats you can change gear ratios, add ball bearings, fit electronic speed controllers and choose from the wealth of available prop sizes and pitches. Going to a 7-cell or an 8-cell pack is a quick trick to gain a little more speed. Needless to say, any timed or automatic charger for your R/C car is just what you need for your boat.

The real fun comes when you race these things. At RCCA, for turn buoys we use two styrofoam cups attached to a stone or a bolt with five or six feet of fishing line. When the spray starts flying and the action gets tight around the turns, that's where the excitement is, but make sure you don't leave the buoys in the pond after a day's racing. Driving skill is just as important with these boats as it is with cars. Both the Ayatollah and King Ura have faster boats than I do, but I'm nearly always victorious. I stay cool; they don't! I'd better be careful; I might get fired!

If raising a two-foot rooster tail sounds as if it might be your kind of fun, give it a try. If you'd like even more info, check out one of our other publications, *Radio Control Boat*

Opposite page: The Hobby Lobby Electro-Vee, "Loose Ends," keeping it all together, even in choppy conditions. Note the rooster-tail spray kicked up by powerful surface drive.
Below: The MRP twin-motor Unlimited Hydro...on the "ragged edge." Picture tells all.



(Continued on page 39)



FAST BOATS



The "guts" of the Electro-Vee. Note the BoLINK speed control, Parma flat-pack and LeMans 240SB bolted to the Hobby Lobby transmission with an optional 2-1 gear ratio.



This heavy-duty Astro AC/DC 6- to 7-cell car charger is exactly what's needed for your boat. Of course, any charger you use with your car will do very well.



This Robbe (as yet un-named) twin surface-drive-powered deep vee will soon be available in the U.S.A. Many are getting in on the act.

Modeler, for the entire scoop. Oh, yes! One more thing: You don't have to clean off any dirt at the end of the race!

**Here are the addresses of the companies mentioned in this article:*

Hobby Lobby International, 5614 Franklin Pike Cr., P.O. Box 285, Brentwood, TN 37027.

MRP, 18676 142 Ave. NE, Woodinville, WA 98072.

Kyosho; distributed by Great Planes Model Distributor, P.O. Box 4021, Champaign, IL 61820.

BoLINK R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

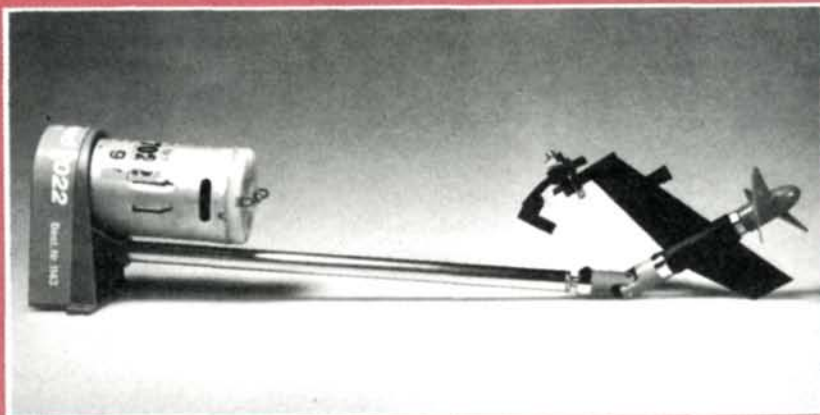
Hobby Shack, 18480 Bandilier Circle, Fountain Valley, CA 92728.

PDI, 16922 NE 124th St., Redmond, WA 98052.

Parma International, Inc., 13927 Progress Pkwy., North Royalton, OH 44133.



Whether it's a stock wind or an all-out "killer" motor, both the MRP Hydro and the Electro-Vee will accept them with no modifications.



The secret of the speed and long duration of the Electro-Vee—the Graupner Hydro-Drive. This surface-drive unit will accept any hot car motor. Only two screws for a quick change.

The Pole Position

by RICH HEMSTREET

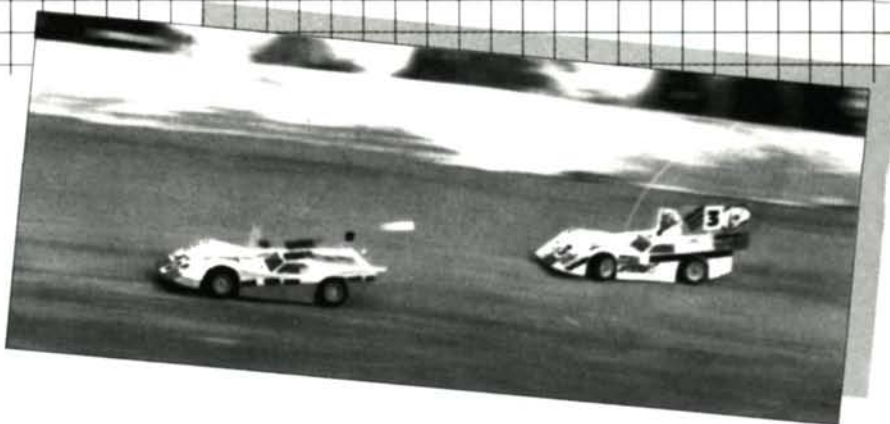
A FEW YEARS AGO, organizers of the JG Oval races started a Top Engineering Contest similar to the Concours Awards, and this was held at most of the major events.

One of the cars that appeared in an early engineering contest was the Dominator—a 4WD car built by Jerry Landgraff. This car featured a simple, efficient, chain drive, a low center of gravity and offset batteries—just the car you want for racing on a dirt oval! Now Jerry, who is the owner of Custom Works*, produces that car for us. He concentrates on winning A Mains at national events with the Dominator, and he leaves the engineering contests to the new innovators with their one-off specials.

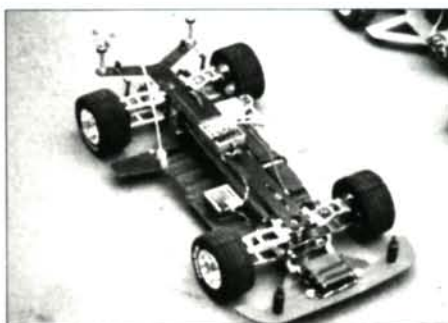
Judging a top engineering contest can be difficult, to say the least. One driver may make minor improvements to a production car, while another racer may build an entire car from scratch. Yet another driver will chrome-plate and spit-polish a stock setup, while another makes crude (or cobbled) changes to improve a basic car. Does one car have to beat another on the track to prove which car was the best technically? A production car must be cost-effective, so the designers certainly have their work cut out for them, as they must compete against high-ticket titanium one-off cars.



Joe MacGregor was one of the few to offset the batteries in the 2WD Class.



This year, judges of the JG Oval Best Engineering chose three champions, one in each class of cars that were raced. The car's qualifying performances weren't taken into account in determining the winners; the judges simply looked the cars over very carefully, and then made their decisions.



Sean Young's scratch-built car looked very much like a Dominator.

In the Sprint-Car division, the first-place award for Best Engineering went to John Smith, who had an RCRC* RC 10 to which he'd added an MIP* chained gearbox. John Peterson took second with his conversion of an Ultima into a sprint car. This car didn't look as good as most of the others, but it sure did run well. Martin Buchanan's Big Boy Toys* RC 10 won third place.

The 2WD Best Engineering winner was Jim Benincasa, who had built a chain-driven gearbox that looked bullet-proof! Ed Knowles' Cox* Turbo Scorpion—with its hand-built gearbox—took second place. (This car ran well enough

to make the A Main.) Joe MacGregor offset his batteries and used an MIP gearbox to win the third-place Engineering Award. We'll probably see more cars with the batteries offset for oval-track racing. So far, very few racers have taken the lead in developing the 2WD oval-track cars, but maybe a MacGregor off-set will be produced in the future.

Ed Schaefer won first place in 4WD Best Engineering with a hand-built car. Sean Young's second-place scratch-built looked very similar to the production Dominator. Andy Bartucca won third place with the most unusual-looking car

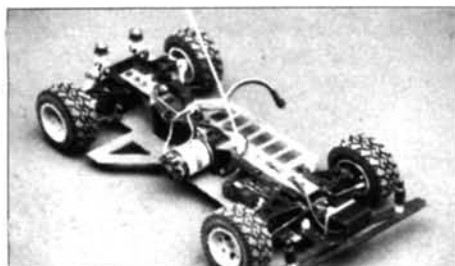


Scratch-built Ultima sprint-car conversion by John Peterson took a second-place Engineering Award.

in the competition. He used titanium to build his car and mounted his motor halfway between the right side tires, unlike the other 4WD cars, which had motors mounted near the left rear tires. (A motor mounted on the right should get better air cooling than one mounted on the left, next to the batteries.)

After all the Mains, the fastest four qualifiers at the JG Oval—all 4WD—ran a two-minute trophy dash. The racing was close for the first minute, but Curtis Strawn soon pulled away for victory over Dave May, Erik Soderquist and Gary Kyes.

The last race of the day was a TQ run for the top qualifier in each class. Each driver was handicapped at the start, according to his qualifying time. Scott Quillen was TQ in both the 2WD and the Sprint-Car Class, so he chose to run his 2WD car, and that gave John Peterson



Andy Bartucca used titanium to build this unique 4WD Oval machine.

(second-fastest Sprint-Car qualifier) a chance to get into the race. Peterson started in first position with Strawn a few feet behind, and Strawn would have to pass Peterson six times in four minutes to beat him. Quillen started about thirty feet behind Strawn, and he had to pass Peter-



Ed Schaefer took the first-place Engineering Award with this car.

son three times to beat him. Strawn needed to pass Quillen four times to beat him. Got that? If the figures worked out correctly, all three cars were supposed to cross the finish line on the same lap. But Peterson had an advantage! He was able to run the four-minute race faster than he ran any of his qualifiers. He was passed several times, but he always ran his line through turns, and Strawn and Quillen had to pass on the outside. Strawn had to pass Quillen on the turns, as both cars were equal in speed down the straights.

Peterson didn't have to worry about tangling with any other open-wheel cars, and he eventually won, with Quillen in second and Strawn in third place.

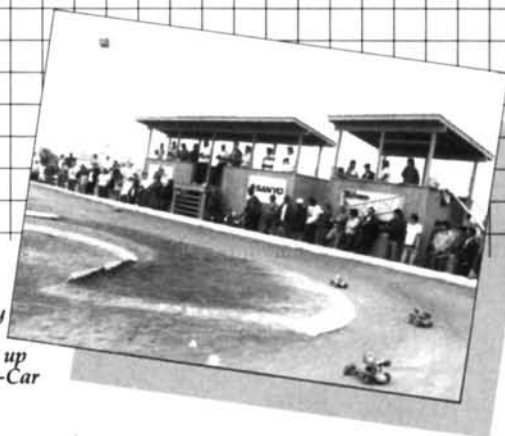
Oval-track racing is coming on strong. ROAR has just introduced both paved and dirt-oval National Championships, so there will be a total of 14 ROAR Oval National Champions in three scales by the end of the summer.

Lake Whippoorwill International Speedway is already being prepared for the second Radio Control Car Action Weekend, to be held in September this year. There are new pit benches and a new permanent bleacher section, and the installation of two or three more sections of bleachers is planned. If you made it to



The hand-built gearbox on Knowles' Turbo Scorpion won him second place.

RCRC and Big Boy Toys sprint-car conversions made up most of the Sprint-Car field.



last year's race, I know you won't want to miss this year's event.

If you do come to the 1988 Car Action Weekend, you'd better be ready for some truly high-speed racing. The $\frac{1}{10}$ -scale stock cars are running close to 40mph and the $\frac{1}{10}$ -scale modified cars reach speeds of over 45mph. Joel Johnson recently broke 50mph with his Trinity*-powered Predator! Almost all the cars need wings to handle the speeds, and these are now made of clear Lexan so that



A chain-driven gearbox took first place in the 2WD Best Engineering Contest.

the cars look more like full-size cars when they're on the track. Make plans to race with Car Action at Lake Whippoorwill in September!

**Here are the addresses of the companies mentioned in this article:*

Custom Works R/C Products, 3720 Easton Dr., Suite 6, Bakersfield, CA 93309.

Radio-Control Race Center (RCRC), 18240 S. Vermont Ave., Gardena, CA 90247.

MIP, 383 Edna Pl., Covina, CA 91723.

Big Boy Toys, 4408 Moscato Way, Bakersfield, CA 93306.

Cox Hobbies, Inc., 1525 E. Warner Ave., Santa Ana, CA 92705.

Trinity, 1901 E. Linden Ave., #20, Linden, NJ 07036.

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MRC/TAMIYA AVANTE

(Continued from page 28)

Car Action, so I'll only comment that it's an engineering triumph. The Trinity motor was used to provide the Avante with the competitive edge its design deserves.

As the race got underway, I was surprised going into the first turn, because the Avante got there before I expected, and the field was about half a lap ahead before I could get the Avante straightened out. However, with some hard use of the throttle, the Avante was back to the pack with remarkable speed, and one car after another fell to the Avante's lightning-fast pace. Before two minutes had elapsed, the Avante's lead was growing, and there was no looking back.

After the jumps, the Avante landed hard, showing that stiffening of the suspension would be needed for future runs, but the Avante's speed and handling enabled me to pull away from the competition. Even steering under full power was good. By the way, three of the biggest names in 4WD off-road cars were competitors in this race. For an out-of-the-box car, Tamiya's Avante is very impressive; as always, Tamiya did its homework!

(Continued on page 50)

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- Car Kit
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SCOPING



BY RUDY MEYER

OUT

Novak's new NESC-1x Eliminator

SCOPING OUT: As we're committed to bringing you the most up-to-date technical information on R/C products, Radio Control Car Action now has Rudy Meyer, an accomplished electrical engineer, to test the newest high-tech electronic equipment that's flooding the R/C market. "Scoping Out" is a two-part test in which a product is first subjected to extensive bench testing using sophisticated equipment and then actually used in the field. These tests will allow us to expose any ridiculous performance claims and, at the same time, provide R/C car enthusiasts with invaluable information on where they should put their money!



The new Novak NESC-1x Eliminator electronic speed controller features twice as many MOSFETs as any other top-notch speed control on the market for the lowest voltage drop. Although it's larger than the norm, its performance makes up for the difference.

WELL, HERE I AM AGAIN—back in the lab with another electronic speed controller on the bench and ready for testing. In several future issues of *RCCA*, I'll be presenting data on different makes and models of controllers, and I've just put the Novak* NESC-1x through its paces. Some features of the NESC-1x are:

- Proportional braking
- Battery-eliminator circuitry (BEC)
- FET technology
- Smallness

Since the Novak NESC-1x is small and has a BEC, it's very good for $\frac{1}{12}$ -scale models. The BEC may also be adapted to a 4-cell battery pack by connecting the two red wires.

Hooking up the controller to the test equipment, the various parameters were initialized to the Futaba* radio I was using. You're not limited to a Futaba radio, as the NESC-1x is also available with Airtronics* and Varicom's* KO Propo radio connectors.

Initialization of the controller to the transmitter is easy. First decide where you want the trigger/stick neutral

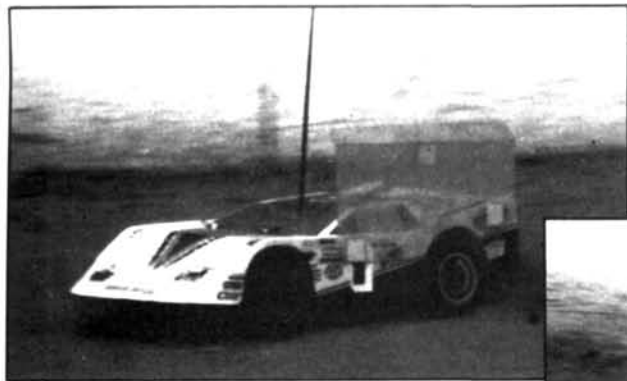
position to be; set that position, then adjust the controller's neutral pot counterclockwise until the motor just starts to run; back off until the motor just stops. Next, set the trigger/stick to its maximum position, and adjust the speed pot until you obtain maximum rpm from the motor. With this initialization, you'll have linear acceleration for the trigger/stick movement and approximately a 30-percent braking rate when you release the trigger/stick. By adjusting the neutral pot clockwise from the neutral position, you'll increase the braking rate, but there will be a lot of "dead space" on the trigger/stick before acceleration takes place. Using this adjustment, you can vary the braking rate from 30

percent to 100 percent. Using the neutral pot in this way gives you simultaneous varied braking and adjustable-drag acceleration. If you want to turn this controller into a drag controller without affecting the braking, you should set the neutral and speed pots to the original settings described earlier in this article. From here, if you adjust the speed pot counterclockwise in small increments, you'll turn the trigger/stick from linear acceleration to drag in varying degrees. With this adjustment, rapid acceleration takes place *early* in the trigger/stick movement; with the neutral pot adjustment, rapid acceleration takes place toward the *end* of the trigger/stick movement.

These tests were done with the controller operating from a 6V supply and driving a 12amp load. At this load, the controller delivered 5.9V to the load or motor. This means that there was .1V dropped across the controller and its wiring.

Care must be taken when mounting and hooking up the NESC-1x or any other electronic speed controller, because if the battery leads are reversed, the controller will be

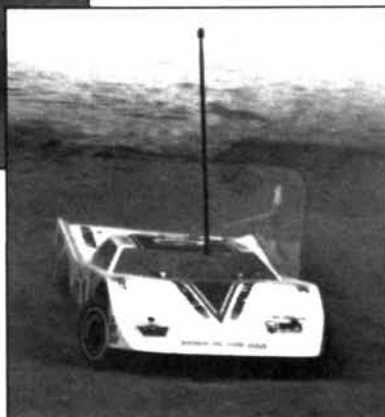
(Continued on page 58)



DIRT OVAL SPECIAL

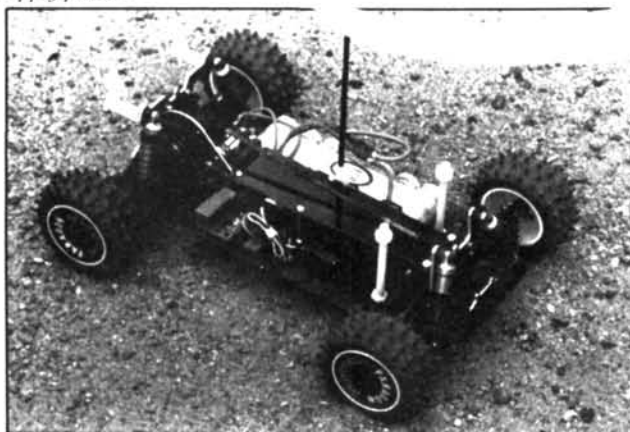


Both the Turbo Optima and the Optima Mid use the new Parma Matched Sanyo Cadnica Extra 1700mAh cells to supply power.



WANT TO ADD a new twist to off-road racing? Dirt-oval racing is the newest R/C craze. Until now, it was relatively difficult to enter dirt-oval racing and be competitive without a specialized dirt-oval car. Because the cars are made of composites and special lightweight material to keep weight to a minimum, their price tags are out of the grasp of the average R/C enthusiast.

With the increasing popularity of this type of racing, a great many accessories and conversions have been made available, so we can now convert our 1/10-scale off-rovers into one of those high-speed "Cruise missiles." Special classes of racing have been instituted at many tracks around the country to accommodate the growing number of "converted" cars, because these cars simply can't keep up with the high-dollar oval-racing machines. In converted cars, power is lost through the differentials, giving the out-of-



By simply adding the Trinity Composite Oval Chassis, the Optima Mid is transformed into a formidable Oval competitor.



DIRT OVAL OPTIMAS

by STEVE POND

the-box oval cars the advantage in flat-out performance. But with the inception of a racing class for this new breed, you can enjoy oval racing with your off-road car for a fraction of the cost of buying an entirely new car.

The Turbo Optima and the Optima Mid from Kyosho* are shining examples of competitive off-road racing machines that can be converted to burn up the oval. RCH* offers a number of oval-racing accessories, including a complete, high-quality conversion kit for the Optima and Turbo Optima.

The Turbo Optima

The conversion kit replaces the Optima's frame rails with a fiberglass plate that places the battery pack on the left of the car. This allows the car to make better left-hand turns, and that's the only direction you turn in when you're oval-racing. The original steering linkage is replaced with the Associated-type linkage found on the RC 10. To prevent the chassis from flexing, a set of lightweight supports that runs between the new shock and upper-link mounts (front and rear) is included.

Because the original frame rails are being replaced, the front and rear differential assemblies must be mounted directly onto the fiberglass plate. The front differential mounts easily to the plate with six self-tapping screws, but the bumper included with the conversion kit must be installed between the differential and the chassis plate to allow sufficient clearance for the chain.

(Continued on page 118)

Convert your Optima or Optima Mid for turn-left go-fast action!



The Turbo Optima/RCH combination was quite effective for the left-handers, as all electronics (except the servo) weigh down the left side of the car.



RACE ORGANIZERS YOUR WAIT IS OVER!



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MRC/TAMIYA AVANTE

(Continued from page 42)

Three minutes and forty-five seconds into a four-minute race, with half a lap lead, guess what happens?—battery dump time! However, I'd made my point—the Avante and Tamiya are making people take notice! I hear they've already really showed 'em in some of Japan's important races.

A post-race inspection of the test car revealed some interesting conditions. First, following the battery dump, I realized I'd have to go about two teeth lower than the 22-tooth stock pinion with the installed Trinity motor and a 6-cell pack, but information provided by Tamiya didn't tell me the pitch of the gears, and I needed to know that. I hope that the hobby dealers, at least, will know, so that I can obtain the proper pinion gears. Second, it's necessary to add the included spring collars to the shocks to help stiffen the suspension and improve the Avante's jumping ability. Third, the inspection showed that two of the aluminum ball-end shafts had been damaged. This might be the Avante's weakest point. Its design is excellent, but aluminum is used at these stress points, and the results of my track

(Continued on page 58)

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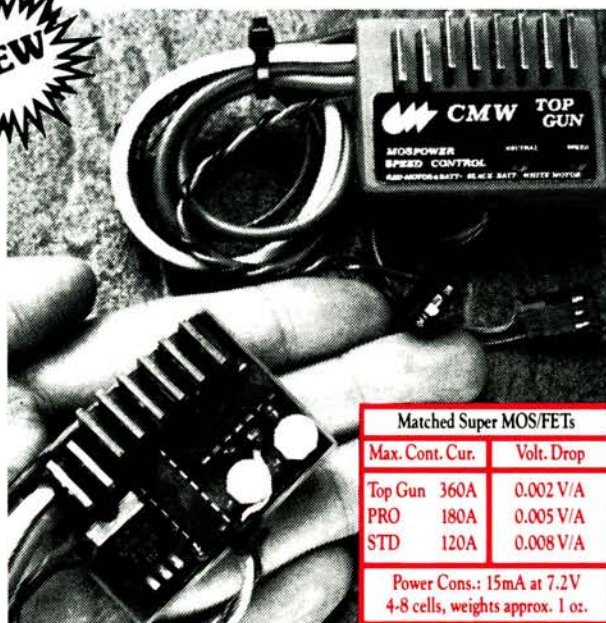
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Matched Super MOS/FETs

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Top Gun	360A	0.002 V/A
PRO	180A	0.005 V/A
STD	120A	0.008 V/A

Power Cons.: 15mA at 7.2V
4-8 cells, weights approx. 1 oz.

☐ Computer Chips reduce components and give more efficiency and reliability.
Compact and lightweight. Very low voltage drop. Very smooth and good punch. Also...
Motor Dresser/Tester; Modified Motors, Peak Charger, 1/2, 1/4, 1/8 Tire Truing Machine

Send self-addressed stamped envelope for FREE sticker sheet.

*Spec. subject to change for improvement without further notice.

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BWS Racing Products
World Champion
- ★ **DON JONES**
'87 ROAR Nat. 2 WD Champ
- ★ **CHRIS DOSECK**
'88 1/12 Nat. Champ
- ★ **SCOTT MONTGOMERY**
'86 Region 4 Champ
- ★ **RANDY DALE**
'87 Region 4, 2WD Champ (S)
- ★ **WILLIAM STEIN**
'87 Region 4, 4WD Champ (S)
- ★ **DOUG FICHUK**
'87 Region 4, 4WD Champ
- ★ **CARL CHRISTY**
- ★ **JIM HOFFMAN**
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- ★ **DAN LOUIS**
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ONE RUGGED BUG.

PROJECT

BIG BEAR

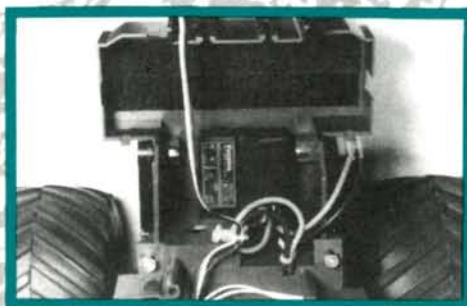
PART II

by FRED L. BEAVER

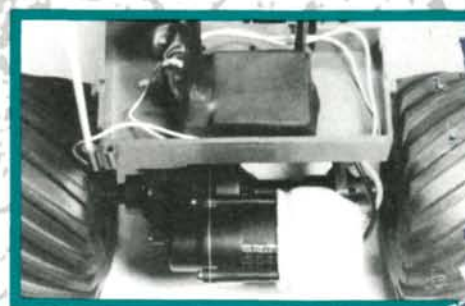
IN THIS CONCLUDING article on transforming the Marui Big Bear into the Big Beetle, I'll explain the modification needed on the running gear and give some assembly and maintenance tips.

By now, you should have purchased all the extra components you'll need. You should also have drilled the holes in the chassis for the mounting posts, and painted the body, the body-mounting hardware, the inner-wheel hubs and the front

suspension stabilizer. I modified the running gear by replacing the king components with better ones. The



The Futaba MC112B electronic speed control can be mounted with screws through the right mounting flange, or with Velcro as shown here. The left mounting flange must be removed to allow clearance for the battery.



The Futaba R2GS receiver is mounted at the rear of the chassis and is enclosed in a Tamiya rubber bag for protection.

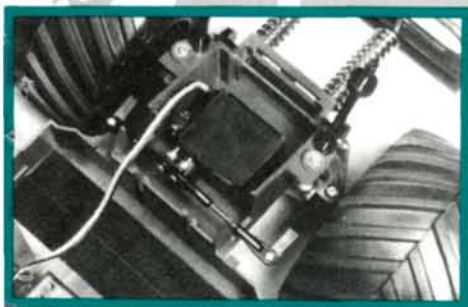
Clad in Beetle Lexan with shining Pro Line wheels, the Bear shows what it can do with these low-buck modifications.

following guidelines may be used when you need to deviate from the instructions.

When assembling the front suspension, don't install the silver ball in the steering knuckles, as the swivel ball and screw in the JG* heavy-duty steering kit will replace these when the steering servo is installed later. If you want to, you can replace the front springs provided in the kit with the JG heavy-duty springs.

The JG front-suspension stabilizer goes on when you install the knuckles. This popsicle-stick-shaped piece of fiberglass connects the two sides of the front suspension, and it provides protection against front-end damage when landing hard off a high jump. It also helps the car to track straight. Owing to the thickness of this piece, the 4mm spring washers used on the front-suspension mounting screws can't be used, so some thread-locking compound is recommended here.

In place of the oil-less metal sleeves used in each half of the gear case, use the NMB 7x11 bearings along with their nylon shims. Note that these are the thinner bearings with the larger inside-diameter holes. Place the nylon shims in first, then press in the bearings, allowing them to protrude approximately 0.5mm. Also



The JG Manufacturing Heavy-Duty Steering Kit reduces play in the steering linkage and, unlike the stock hardware, it won't come apart on hard landings.



use a 7x11

bearing (without a shim) in place of the nylon bearings used in the left half of the gear case and the right rear suspension arm. After installation, add a drop or two of lubricant.

After the gear case has been assembled and the rear suspension arms have been installed, attach the motor leads to a small battery to ensure that the motor and gears turn freely. If there are no problems, this is the best time to install a foam end-bell cover. To install this, temporarily detach the right rear suspension arm from the plastic motor cover and pivot it out of the way. Make two small holes in the top of the foam cover, and thread the motor leads through it. Then stretch it over the motor cover as tightly as possible and secure it with a rubber band or, even better, with a nylon tie-wrap. Now you can pivot the suspension arm back into place and re-attach it to the plastic motor cover by running the two self-tapping screws through the foam cover.

The next step is the assembly of the tires and wheels. The wheels consist of an inner ring, an

BIG BEAR

outside hub and an inside hub, which you've already painted with black gloss. Replace the outside hubs with the chrome ones from Pro Line*.

Assembling the tires and wheels can be very frustrating, so the following tips should be helpful: First, have a bowl of soapy water on hand to wet the wheel pieces or the tire, to help them slip together more easily if they become "balky." Insert the inner wheel ring all the way through, until it can move around inside the tire. Next, push on the outside hub until its rim is completely flush with the tire. Flip the tire over and observe whether the center of the hub is centered inside the tire or not. If it isn't, keep working the hub onto the tire until it is. Now place the inside hub partially onto the tire. Peer through the small holes where the attaching screws go, and rotate the inside hub until these holes match the holes on the outside hub as closely as possible. You must align these holes as well as you can, since once you've pushed the inside hub in a little more, it will be almost impossible to rotate it without ripping the tire.

When you're satisfied that the inside hub is going on correctly, push it until its rim is completely flush with the tire. If the attaching screws won't reach, you'll have to push one or both hubs further into the tire.

Follow this procedure for the remaining tires and wheels, making certain that, as you assemble them, the set you end up with has the V-shaped tread patterns pointing forward. When this is finished, press the NMB 5x11 bearings onto each side of the front wheels and lubricate them.

When attaching the rear springs, you may want to use the black plastic spacers provided in the kit for the purpose of

firming up the rear suspension. When the rear suspension and motor assembly have been attached to the chassis, you can mount all four wheels.

The next step is to assemble and mount the steering servo. Compared with that pictured in the instructions, the Futaba S148 servo is mounted in reverse, so that the wiring harness leading from it can run down the left side of the chassis. Use the linkage arms provided in the JG heavy-duty steering kit in place of the provided rod adjusters and ball ends. The holes in the servo horn and the steering knuckles will have to be enlarged to $\frac{5}{64}$ of an inch to accommodate the screws that attach the linkage arms. The short arm will control the left wheel, while the long arm will control the right wheel. Temporarily attach the linkage arms to the steering arms. Don't worry about setting up the toe-in yet, as you'll need to allow the servo to center itself after you've installed and switched on the rest of the radio gear.



This BoLINK pickup body is another alternative for covering the Big Bear.

the right mounting flange, or you can mount it with Velcro. In either case, the left mounting flange must be cut off to allow room for the battery pack. Crimp or solder two standard-size male connectors onto the motor leads, to mate with

the speed controller's motor connectors.

For increased protection from shock and the elements, the R2GS receiver should be located in the tray directly above the motor, instead of on top of the steering servo as the instructions suggest.

Connect the wiring harness from the steering servo into channel one, and the harness from the speed controller into channel two. Enclose both in plastic or rubber bags, and attach them to the chassis with double-sided tape or Velcro. Turn on the transmitter first, and then hook up a battery pack.

Before mounting the antenna and giving the Big Beetle its shake-down run, you can finish adjusting the linkage

arms and make any necessary adjustments to the trimmer settings on the speed controller.

When you're satisfied that everything is working correctly, install the body-mounting posts. An S-shaped offset screwdriver will be needed to install the front posts, or you'll have to partially disassemble the front end to get at the mounting screws. Remove the antenna and install the body, then mark and drill a hole for the antenna in the appropriate place. Re-install the antenna, and the Big Beetle will be ready to tackle whatever you want to dish out.

The modifications suggested here are by no means the only ones you can make to increase performance. The "hotter" Kyosho* LeMans 480T motor is a modestly priced direct bolt-in replacement for the original motor; it won't harm the stock gears and will provide a really eye-opening increase in speed. For wilder motors, the bulletproof heavy-duty differential made for the Big Bear by MIP* will be needed.

Other MIP products for the Big Bear include a heavy-duty idler gear and a gear-case saver that creates a hardened



NMB Goldseal bearings greatly reduce the amount of friction in the Big Bear drive train.

The Futaba* MC112B electronic speed controller should be mounted where the stock resistor-type speed controller would have been. You can drill two small holes in the chassis to secure it with screws through

(Continued on page 131)

ONE-TENTH

DIRT OVAL OVERVIEW



by GARY McALLISTER

I DON'T KNOW ABOUT YOU, but where *I* grew up (in the Mid-Atlantic States) dirt oval was *king*. If you raced stock cars or liked to watch stock-car racing, dirt was where the action was. Times have changed, and so has stock-car racing, but you can still find more dirt-oval tracks than any other type of stock-car track.

Dirt off-road cars appeared in R/C racing a few years ago, and it was only a matter of time before they found their way onto scale dirt ovals.

At first, it was run what ya brung!—mostly Tamiya* Sand Scorchers or Cox* Scorpions set up for off-road courses. Pretty soon, the suspensions got stiffer and lower, batteries were shifted around the chassis for weight bias, full-fendered stock-car bodies became mandatory, and the racers started babbling terms like

“stagger” and “jacking the weight” and using unheard-of gear ratios.

Needless to say, the cars were going faster and faster, and the technology at the tracks had to catch up to handle the speeds.

That brings us to today's R/C dirt-oval racing. You'll now find five basic classes of cars running at most dirt-oval tracks:

- 2WD Stock
- 2WD Modified
- 4WD Stock
- 4WD Modified
- Sprint Cars



The JRX2 from Ranch Pit Shop is a fine example of the new generation of high-tech oval-racing machines.

THE DIFFERENT FACES OF DIRT-OVAL RACING



Left: The Sprint-Car Class of dirt-oval racing has the most scale machines with the big wings front and rear, nerf bars and sometimes a set of staggered tires.

Below: This is typical of the high-performance, high-speed 4WD oval-racing machine.

These classes give racers lots of levels and choices for entering dirt-oval events. The two most interesting seem to be the 4WD Modified Class (with its awesome speeds and teeth-jarring crashes) and the Sprint-Car Class (with its attention to detail and scale race-car appearance).

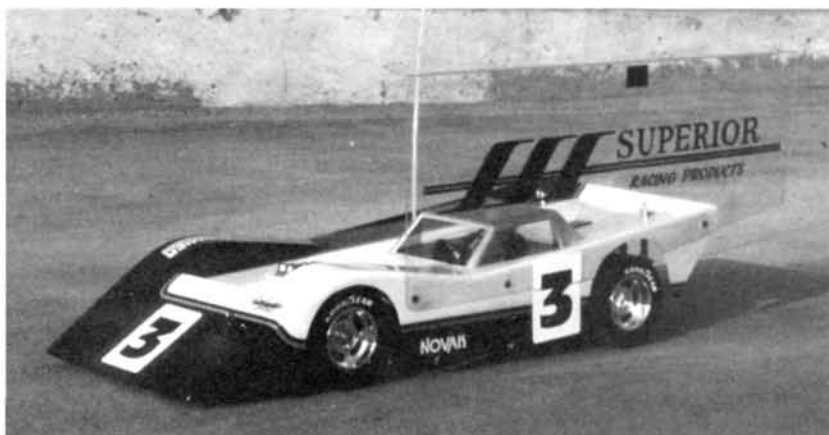
Both ROAR and NORRCA sanction dirt-oval events on a national scale as well as at local or regional races or race series.

Most U.S. manufacturers now make parts or specialty items for R/C dirt-oval racing, including bodies, tires, suspension parts, etc. Some even *specialize* in dirt-oval cars and parts. Look through the ads in *RCCA*, and you'll find all the trick parts and tech tips you need to get started. This issue, in particular, will blow you away.

It's great fun preparing your car for oval-track racing, as you'll see very many approaches to suspensions and chassis layouts. Dirt-oval racers are very creative; I've seen some really bizarre concoctions, some of which work really well, and others that just *look* good.

Oval racers go nuts with tires, too—especially in 2WD. No two cars ever have the same tire setup, and drivers are constantly changing tire combinations to adjust to track conditions. The best tracks use a surface that gets a “blue groove,” i.e., the surface gets packed hard and has a darkened area on the fast line around the track. (Most full-scale dirt-oval tracks develop this “blue groove,” too.)

Their bodies set the dirt-oval cars apart from the rest; they range from Grand-



National-style to ASA to Outlaw Wedges, and from Mud-Buses to Sprint cars. Every known combination of fins and air dams can be seen, and this, coupled with some outrageous paint jobs, makes for a great display. A ten-car Main of full-bodied stock cars is R/C entertainment at its best!

Speed is what counts in dirt oval, and this is what sets oval-track racing apart from course racing, no matter what the surface. When racers first experience the speeds the dirt-oval cars are capable of, they're hooked! Close calls are frequent, and these are real eye-openers for both racers and spectators, especially in 4WD Modified. This class is the pro football of R/C racing; it's down and it's dirty; it's fast-paced and graceful; and *nobody* sits down for a 4WD Modified A Main!

Close fender-to-fender racing and a lot of bumping and grinding are typical of dirt-oval tracks, and the final laps of races

usually lead up to some of the most exciting finishes in R/C car racing.

But don't forget; as with all R/C car racing, having *fun* is our main aim. No matter what your level of driving skill, there's a class for *you*, and everyone is welcome. Even beginners learn quickly on oval tracks, so get on down to your local roundy-round and rub fenders with the good ol' boys; ya'll come!

**Here are the addresses of the companies mentioned in this article:*

Tamiya/MRC, 2500 Woodbridge Ave., Edison, NJ 08817.

Cox Hobbies, Inc., 1525 E. Warner Ave., Santa Ana, CA 92705. ■

SANYO
AUTOCRAFTS
RACING TEAM
HOUGE ENTERPRISES
Team JLR
RACING PRODUCTS
SANYO
Andy's
Team LOSI
PERFORMANCE
Competition RC
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MRC/TAMIYA AVANTE

(Continued from page 50)

test perhaps indicate that a stronger alloy should be used.

There's no doubt that the Avante is the product of endless planning and design work. Tamiya is finally forcing the top competition to stop and take notice!

*Here are the addresses of the companies mentioned in this article:

MRC/Tamiya, 2500 Woodbridge Ave., Edison, NJ 08817.

Trinity, 1901 E. Linden Ave. #20, Linden, NJ 07036.

Futaba Industries, 555 W. Victoria St., Compton, CA 90220.

PDI, 16922 N.E. 124th St., Redmond, WA 98052. ■

SCOPING OUT

(Continued from page 47)

destroyed. The controller should be mounted so that a good flow of air can pass over it.

As I said in the beginning of the article, these adjustments are easy, but getting the supplied insulated screwdriver into the pot slots is very difficult, as the slots are hidden on the bottom of the controller. The holes for the pots don't line up with

(Continued on page 70)

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DIRT OVAL SPECIAL



DIRT OVAL

by STEVE POND

HAVING BEEN AN auto-racing fan for many years, I've seen just about every type of racing: the Daytona 500, Indy 500, Pocono 500 and Meadowlands Grand Prix; GTP racing from Limerock Park; the U.S. and Summer Nationals of drag racing; the list goes on. All command extensive media coverage and high-dollar sponsorships.

Even though it's shoulder-to-shoulder with the best of them when it comes to hair-raising action, dirt-oval racing has received less than its fair share of publicity. Dirt-oval racing has, for a long time, been running in the shadow of the CART and NASCAR races, but most people don't realize that racers don't just jump into an Indy car when they think they're ready. These drivers put in their time to get to where they are, and for many, dirt-oval racing experience was the foundation of their successful driving careers.



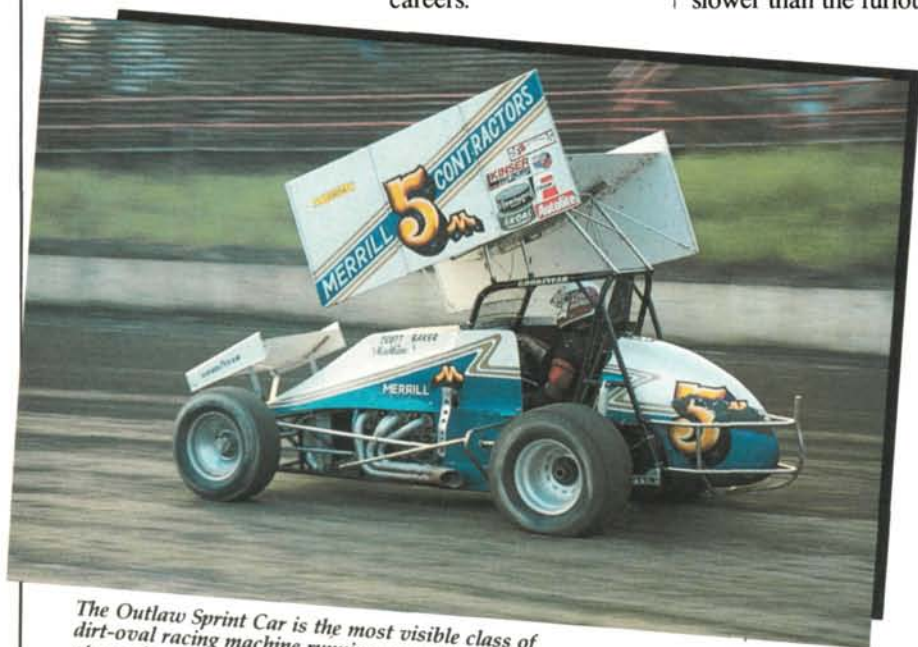
The Mudbus is a popular class of off-road oval machine that can be seen racing at many local dirt-oval tracks.

Because of their high speeds, the Outlaw Sprint-Car Class is the most popular class of dirt-oval racing. These bipteros chariots of thunder can fly around the *dirt* oval at over 140mph. I can't remember the last time I went 140 on *pavement*! To power the sprint cars, a small-block engine is used, making almost enough horsepower to match each pound of gross weight.

The Mudbus is another class of dirt-oval racing machine that has captured my attention. This runs without wings and uses regular fuel instead of the methanol used by the Outlaws. Mudbus speeds are slower than the furious pace maintained by the Outlaws, but the action is no less intense.

The Outlaw Wedge is a third type of dirt-oval machine, and it's often duplicated in R/C. Unlike the aforementioned open-wheel machines, the Outlaw Wedge runs with a full body, and its odd-looking body styles carry the names of everyday street cars, e.g., Firebird and Mustang, but I fail to see even the slightest resemblance!

If you ever have the chance to see any of these machines in action, take the time to do so. It may forever change the way you look at a left-hand turn! ■



The Outlaw Sprint Car is the most visible class of dirt-oval racing machine running on methanol fuel at speeds up to 140mph.



Buyer's Guide

AMERICAN RACING



Sprint Car Conversion

American Racing offers a sprint car conversion for your RC10. The kit features an aluminum chassis pan, aluminum nerf and roll bars, ABS plastic front and rear body sections, Lexan front and rear wing, aluminum wheels, and dense-foam tires front and rear.

BIG BOY TOYS



Sprint Car Conversion

Big Boys Toys' sprint car conversion kit is designed for use with the RC10. The kit features a fiberglass chassis plate, polished-aluminum nerf and roll bars, aluminum chassis

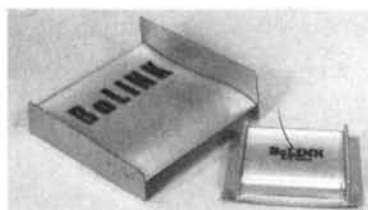
IF A MAELSTROM of high-speed dust and dirt following an angry swarm of wild wedges or winged sprint race cars turns you on, then this Dirt-Oval Buyer's Guide is for you. It's no surprise that turning left and going fast is sweeping the country. With crazy-looking rides like these, you'd have to be a catatonic couch potato not to get turned on. So here they are: the lowering kits, bodies and all the other goodies assembled for your convenience. The high-speed dirt-oval track is waiting ... What are you prepared to do about it!!

BOLINK



Corvette Dirt Tracker

Add a new twist to your oval dirt racing with the Corvette Dirt Tracker body from BoLink. Suggested retail price: \$17, \$25 painted. Order No. BL-2395.



Sprint Car Wing Kit

The Sprint Car Wing Kit from BoLink will fit the BoLink Sprint Car body as well as many other kits with some modification. Suggested retail price: \$5.00 Order No. BL 2725



Sprint Car Body

BoLink's Sprint Car Body is available in clear Lexan and comes with wing, driver, and decals. Suggested retail price: \$23.00 Order No. BL-2396-A



Firebird Outlaw

Add a new twist to your 1/12-scale on-road racer with this Firebird Outlaw body from BoLink. Available in clear lexan or painted. Suggested retail price: \$11, \$17.50 painted.



Oval Racer

The Oval Racer is ideal for dirt oval racing. Independent front and rear suspension with shocks, coil-over springs and limited slip differential, molded-rib front tires, and knobby rears, speed control and clear oval racing body. Kit requires a two-channel radio and a 7.2-volt battery.



Invader

Designed for 1/10-scale road racing as well as oval racing. Independent front end, T-plate rear end with mono-shocks. Includes aluminum motor mounts. Kit requires a two-channel radio and a 7.2-volt battery pack.

CUSTOM WORKS



Dominator IV

The Dominator IV has earned its name by becoming the ruling force

in four-wheel-drive oval racing. It features all-carbon-fiber chassis components, stainless steel ball bearings, hardened drive axles, Delta-pressurized shocks, drag-link steering, turnbuckle ball-cup tie rods, fully adjustable four-wheel-independent suspension, and lightweight, one-piece wheels. This car is equipped with the lowest possible power-loss drive system, and over 100 gear ratios, high-tensile-steel chain, and an Open-Comp Camaro body.

GILMER HOBBY AND MACHINE



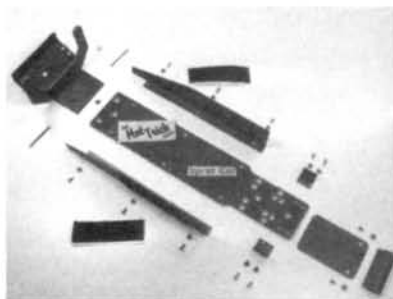
"Mighty Midget"

The Mighty Midget is a 1/4-scale midget race car with many outstanding features including aluminum frame, special torsional front axle, aircraft-aluminum parts at all stress points, steel heim joints, heavy-duty axles, spun-aluminum wheels, precision gear box, and molded-fiberglass body in your choice of 4 colors just to name a few. Available with a Saito .90 opposed two-cylinder four-stroke, or a one-cubic-inch single-cylinder two-stroke.

HOT TRICK RACING

Sprint Car Conversion

Hot Trick Racing makes several parts to convert your RC10 into a sprint car. The wide-foot front-end kit reduces understeer for oval racing, and the sprint car pan side rails and speed-control tray will fit most popular sprint car bodies and roll cages. Also available are front



and rear aluminum lower A-arms that will take the punishment of high-speed oval racing. Order No. 026A for wide-foot front-end kit (\$19.95); No. 090A for sprint car pan (\$18.95); No. 095A for side rails (\$10.95); No. 092A for speed-control tray (\$6.95); No. 073A and 074A for aluminum lower A-arms (\$21.95/pair not shown)

McALLISTER RACING



Wheel Discs

Whether you want that extra touch of aerodynamics or just a rad-looking car, McAllister Racing Wheel Discs are available in a variety of brilliant colors.



The X-Terminator

"X-Terminate" the competition with this wedge-shaped Firebird ultra-low-profile 1/10-scale oval stock-car body from McAllister Racing.



Wedge Vette Body

Winner of the prestigious JG Oval. Suggested retail price: \$19. Order No. B-111.



Wedge Mustang Body

If your blood rushes over outlaw wedge stockers, this body will lead the way to the winner's circle. Suggested retail price: \$19. Order No. B-115.



Race Wings

Aerodynamic wings with side stabilizer fins and dual-angle rear lip you can customize for 1/10- or 1/12-scale cars. Suggested retail price: \$2.00 (1/12-scale), \$2.50 (1/10-scale)



Outlaw T-Bird Body

Big Brother to the 1/12-scale Outlaw T-Bird. Concours and race winner

at many oval tracks around the country. Suggested retail price: \$19. Order No. B-113.



Outlaw T-Bird

This Bird will turn heads as fast as it does lap times. Suggested retail price: \$12. Order No. B-99.



The Gambler

For the dirt oval enthusiast searching for an authentic look. Molded headers included. Suggested retail price: \$18.00 Order No. B-112



Wing and Fin Blank

Custom fabricate your own wing or side fins for your R/C car with this 12x12-inch blank.



Silver Bullet

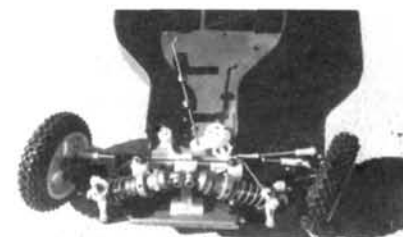
Another authentic sprint-car body

for 1/10-scale dirt-oval racing. The Silver Bullet from McAllister Racing is the one you've been waiting to mate up with the new breed of "coat-hanger" cars.



Short-track Firebird

The thunder and action of short-track racing are here with this low, sleek, ASA Firebird from McAllister Racing, which is once again leading the way in scale-racing trends.



RC 10 Suspension-Lowering Kit

McAllister Racing now offers a complete front and rear Suspension-Lowering Kit of precision injection-molded parts plus hardware. It modifies your RC 10 for dirt or pavement-oval and road racing.

RADIO CONTROL RACE CENTER



Ultima Sprint-Car Conversion

Burn up the dirt oval with this new RCRC Ultima Sprint-Car Conversion. This kit features the high-quality construction and hardware that are standard features of RCRC kits.



Sprint-Car Conversion

Experience the thrill of victory with the RCRC Sprint-Car Conversion for the RC 10 that won the 1988 ROAR Sprint-Car Championship. Features include a Gambler-type "coat-hanger" aluminum cage, nerf bars, realistic headers and more.



Super-Modified

The most recent addition to the RCRC line of conversions is the

awesome Super-Modified for the RC 10. The kit includes a narrow fiberglass chassis, Lexan super-modified body with molded headers and an aluminum roll cage—and that's just a few of its many features!



Sprint-Car Conversion

The Radio Control Race Center now offers a sprint car conversion for your RC10. The Official commemorative signature edition Sprint Car Conversion Kit includes a 6mm aluminum roll cage, 2 aluminum side nerf bars, 2 aluminum side panels, a pair of headers, fiberglass chassis, and all necessary hardware. *Suggested retail price: \$99.95*

PRO LINE



Midget Wing

The Midget Wing from Pro Line can be used on the back of your off-roader to give it more traction. Also available in small, medium, and large sizes. *Order No. 3007*

MRP

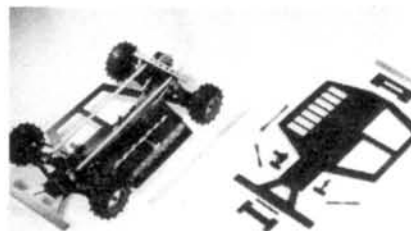
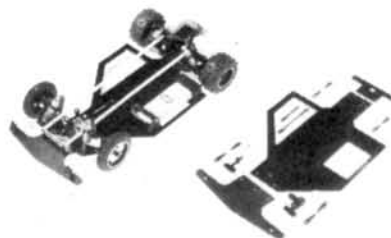


Super Stock

The 1/10-scale Outlaw Wedge

Super Stock body from MRP gives maximum downforce for handling and traction. It can be mounted on any 1/10-scale two- or four-wheel-drive off-road car.

RCH



Oval Conversion Kits

RCH now offers affordable conversion kits for the RC 10, the Kyosho Optima and the Turbo Optima. These kits are easy to assemble, and they offer you an alternative to buying an expensive second car designed specifically for oval racing. Features include a precision-cut, lightweight fiberglass chassis, chassis supports to prevent flexing, heavy-duty steering linkage, a front bumper and all the necessary hardware.

MOODY AUTOMOTIVE

1/8-Scale Gas Sprint Car

Moody Automotive offers a true 1/8-scale gas-powered sprint car, the American. Based on a proven dirt-track design developed over many years, the all-metal kit comes

completely machined and ready-to-assemble using your .21-size model car engine and two-channel radio. Special details include nickel-plated roll cage and nerf bars, sealed ball



coil-over shocks, aluminum-channel chassis, and formed-ABS body parts, including wing and driver figure.

OVAL TRACK R/C RACING



Sprint Car Conversion

Oval Track R/C Racing's Little Outlaw sprint car kit will convert your RC10, Grasshopper, or Hornet into one of the most realistic sprint cars to ever hit the dirt oval. The kit comes complete with outlaw-style wedge-type sprint car hood, tail section, nose wing, top wing, mounting brackets and a special RC10 tub cover. All kits come with full-size plans for roll cage and mounting instructions and will fit the RC10, Grasshopper, or Hornet without modifications. *Suggested retail price: \$25.00*

PACESETTER PRODS.



Hi-Tech Sprinter

The High-Tech Sprinter features a powerful 2.3 horsepower Quadra engine, closed-cell foam tires on spun-aluminum wheels, tubular-steel welded frame, 70/30 oil-filled adjustable dampened shocks, front-end beam axle located with radius rods and Panhard bar, rear-end live axle located with parallel trailing arms and Panhard bar, centrifugal clutch, full-belly pan with aluminum side rails, and an internal dual-disk brake system. Each kit comes with a set of small wrenches, two-stroke engine oil, and a bottle of Loctite thread-locking compound. Wing and header are optional. *Suggested retail price: \$1,095.00*

RACO MODEL CRAFT



Road Runner

The Road Runner is a 1/4-scale road racer that has all the same features as the Jac-Rabbit, except the Road Runner is designed for on-road or dirt oval racing. Shown with optional wings, aluminum wheels, and tuned exhaust pipe.

PARMA



Outlaw Wedge Body

Try this Outlaw Wedge body for Parma for your 1/10-scale racer. Order No. 10217.



Front and Rear Wings

Parma offers front and rear wings for your 1/10-scale off-road cars. Both front and rear wings come in clear Lexan. Order No. 10404 (for front wing) \$3.25, and No. 10405 (for "Monster" rear wing) \$7.50

WCM CORPORATION



Sprint Car

The WCM outlaw-style Sprint Car features an all-welded steel frame, fully-adjustable suspension, spun-aluminum wheels, oil-dampened shocks, chrome-plated bumpers or

Zenoah engine with on-board starter. Kit comes as shown (unpainted) with wings and all necessities. *Suggested retail price: \$1,125.00*

ROCHESTER RACEWAY & HOBBY



Mudbus Bodies

Mudbus Body fits RC10 and most other cars with the use of Parma or BoLink body-mounting kits. This is the most realistic modified stock car body on the market. *Suggested retail price: \$23.00*

RBS FABRICATING



RC10 Sprint Car Conversion

The RBS Fabricating sprint car conversion uses the RC10 as a base for the conversion. The kit features gold-anodized chassis components including chassis pan, roll cage, nerf bars, and rear bumper, a Lexan body including tail section, a beautiful aluminum rear wing that's infinitely adjustable, and all the necessary hardware to complete the conversion. Shown with optional front wing. Wheels and tires not included.



American Racing Models

7933 Ingalls Ct., Arvada, CO 80003.

Big Boy Toys

4408 Moscato Way, Bakersfield, CA 93306.

BoLINK R/C Cars, Inc.

420 Hosea Rd., Lawrenceville, GA 30245.

Custom Works R/C Products

3720 Easton Dr., Suite 6, Bakersfield, CA 93309.

Gilmer Hobby and Machine, Inc.

Dept. RCA 1213 4th Ave., Howard Lake, MN 55349.

Hot Trick Racing Cars, Inc.

1157 Cushman Ave., San Diego, CA 92110.

McAllister Racing

4545 Industrial St., Unit 5H, Simi Valley, CA 93063.

Radio Control Race Center

18240 S. Vermont Ave., Gardena, CA 90247.

RCH

1725 Monrovia B2, Costa Mesa, CA 92627.

Moody Automotive

755 Ash St., Flossmoor, IL 60422.

Oval Track R/C Racing

2906 47th St., Des Moines, IA 50310.

Pacesetter Products

930 W. Hyde Park Blvd., Inglewood, CA 90302.

Raco Model Craft

1400 E. St., Andrews Pl., Santa Ana, CA 92705.

Parma International Inc.

13927 Progress Pkwy., North Royalton, OH 44133.

WCM Corporation

Rt. 2 Box 207A, Buffalo, TX 75831.

Rochester Raceway & Hobby

1725 N. Clinton Ave., Rochester, NY 14621.

RBS Fabricating, Inc.

230 N. Hoernerstown Rd., Hummelstown, PA 17036.

SCOPING OUT

(Continued from page 58)

the pots, and the screwdriver has a shaft diameter that's just a little smaller than the hole diameter. Because of this, you

can't even angle the screwdriver to compensate for the holes being "off."

Another minor problem with this controller, and other controllers of this type, is the direction of the pots' rotation. To set the neutral and speed positions, you rotate the pots counterclockwise, which is the opposite of every other adjustment you make. If you want to turn up the volume on your radio, you don't turn the adjustment knob counterclockwise; you turn it clockwise. This isn't a serious problem with controllers; it's just a pet peeve of mine, because I think all adjustments should be consistent.

This controller is a very good performer, and that's the bottom line.

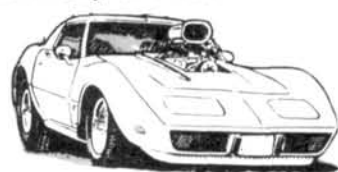
*Here are the addresses of the companies mentioned in this article:

Novak Electronics, Inc., 128-C East Dyer Rd., Santa Ana, CA 92707.

Futaba Industries, 555 W. Victoria St., Compton, CA 90220.

Airtronics, Inc., 11 Autry, Irvine, CA 92718.

Varicom Industries, 18480 Bandilier Circle, Fountain Valley, CA 92728.



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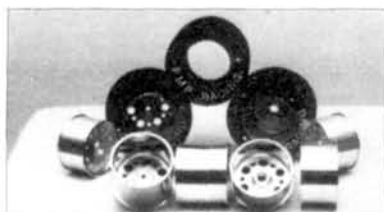


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SHOWDOWN AT SUN



NIGHT

RIDING

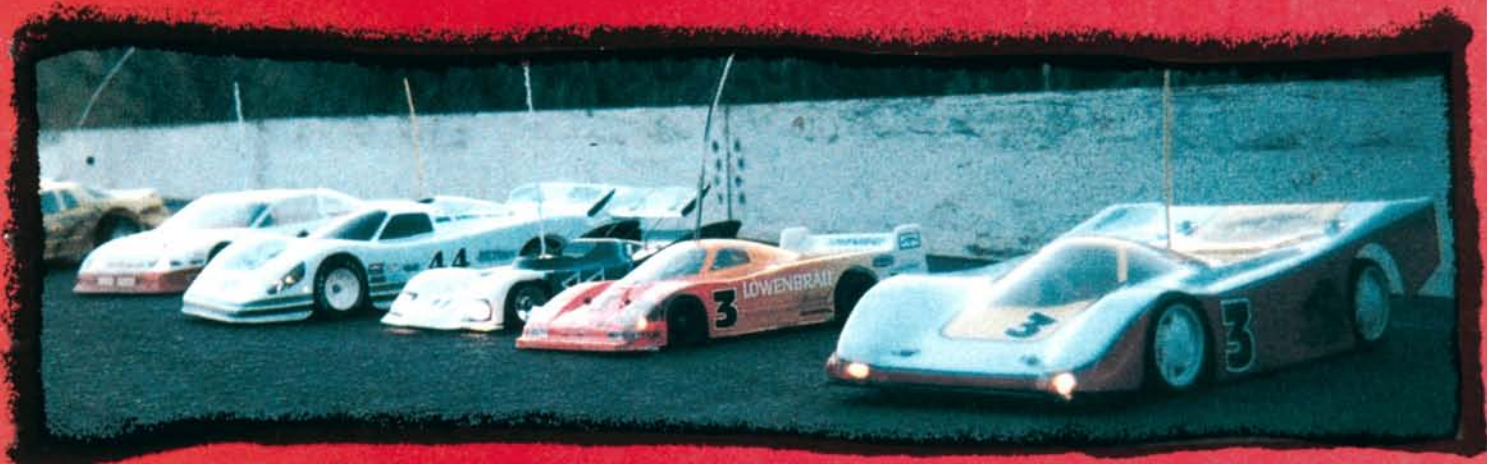
by MIKE LEE

WHILE MOST OF US ARE content just to spend our weekends on the race track, some of us constantly look for new, exciting challenges to test our skills. We've conquered stadium jumps and whoop-de-dos, and we've even tried playing field hockey with cars. Now, there's a new frontier—the night!

Night racing! It was *bound* to happen. Craft-Air* came out with a nifty set of headlights over a year ago. Dependent on the light around the car, and using the regular motor battery, they turn on or off automatically! I couldn't let something like this go by without giving it the ol' acid test.



N D O W N !



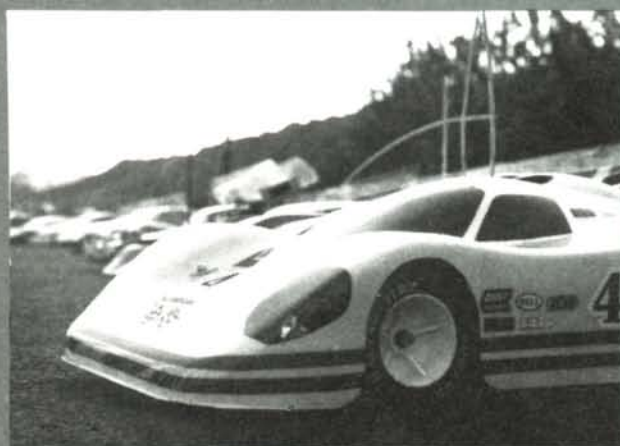
Night racing proved to be a really good idea when a few people got together and drove the streets with road cars, but we wanted head-to-head competition—and we got it! Sponsored by Craft-Air and *R/C Car Action*, the first Southern California Night Road Race was held on April 9, 1988.

All cars ($1/10$ - and $1/12$ -scale) had to race on the closed road course made for $1/8$ -scale paved-road cars. All body styles were allowed, and any type of tire was permitted. Each car had to have at least two headlights to race. And the races began at *sundown!*

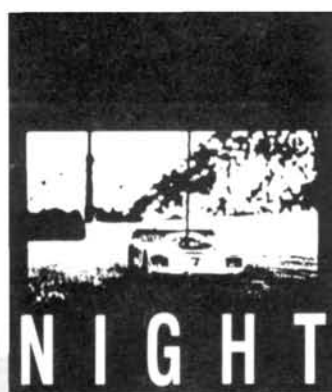
Racing classes were $1/12$ -scale Stock and Modified, and $1/10$ -scale Stock and 4WD. A Concours Class to determine the three best-looking cars was included, as was a special award for the Most Realistic Car with headlights. This special award was won by Russ Escolero with his gorgeous Jaguar prototype road car on a BoLINK* $1/10$ -scale Eliminator chassis.

The Concours awards went to three fine cars, two of which were $1/10$ -scale:

- 1st: John Giblin— $1/10$ -scale Pontiac Grand Prix Stocker.



Far Left: $1/12$ -scale A-Main winners. Left to right, Maurice Griggs, Russ Escolero, Mike Scube and Roger Stensland. Center: $1/10$ -scale A-Main drivers line up their cars for a LeMans start. Left: The cars, each equipped with at least two headlights, line up for the race.



NIGHT

RIDING

- 2nd: Bill Woodfine— $\frac{1}{12}$ -scale March Can-Am.
- 3rd: Maurice Griggs— $\frac{1}{10}$ -scale Porsche 944 street car.

Look at the photo and you'll see the headlights peeking out. Way rad, if you ask me!

The track is a superb road-race circuit that has VHT traction compound laid down for super grab in the turns. The straightaway is 120 feet long, and this is followed by a very fast sweeper to the right and then another 60-foot all-out straight. The inner part of the track features a tight hairpin to the right, leading to the left-hand dog leg of over 90 degrees. Forty feet later, a wide 120-degree right dog leg leads to 20 feet of "punch" and then a left 100-degree elbow. Add a little throttle, and then open it up in a slight left turn of about 60 degrees towards a two-turn dog leg. You come out fairly hot, and if you keep a tight line, you can shoot straight through a right/left chicane and take a hard right onto the straight. This is a lively course with plenty of room to pass and lots of speed potential.

The opening qualifying heats saw the drivers feeling their way around; they gradually became used to seeing very little of their cars and even less of the track! Believe me, the headlights *really* work. When you've become accustomed to watching your headlights go around the track, you find that you can zap around it nearly as fast as during daylight. However, darker-color cars definitely tended to disappear on the track, and drivers usually found them by racer's braille... Whap! Oh, there it is!

The approximately 30 drivers who dared to attempt this demanding race were certainly rewarded with a different kind of racing challenge. A quasi science evolved from experimenting with the number and positions of the headlights, body colors, and even with flags on top of the antennas to help see the cars in the more obscure parts of the track. No one complained, because everyone thrilled to and enjoyed the challenge. Drivers who'd had second thoughts sat on the sidelines, wishing they'd prepared for this!

After two rounds of heat qualifying, the field was set for the Mains, to see who had the best combination of vision, lights and driving skill on this low-light paved course. First up was the $\frac{1}{10}$ -scale Stock Class B Main. Andy Peterson showed the way around the track with a road-modified RC 10. His car glowed with four lights that completely illuminated it. We bumped Andy up to meet the entrants in the A Main, but first, the $\frac{1}{12}$ -scale Stock A Main.

A bunch of $\frac{1}{12}$ -scale cars, with front headlights on their



When the sun has set, drivers flip on the headlights and line up for some action.

small Can-Am or Proto-type bodies, looks like a mad swarm of fireflies as they head toward you coming around turn one. These cars were flying, despite the almost dark conditions. You had to concentrate, to drive with tunnel vision and to know exactly where the turn was. Tunnel vision was vital, just to make sure the car you were watching was yours! Mark Smith led the field with a March Can-Am body on top of an Associated* RC-12L. Winning wasn't easy, and two other cars hounded him until the last minute of the race. Mark held on to take first place with Roger Stensland only a lap away. The top four were: 1st, Mark Smith; 2nd, Roger Stensland; 3rd, Craig Hunter; and 4th, Ed Mullen.

The $\frac{1}{12}$ -scale Modifieds took to the course next. If I'd even *thought* that you could drive a rocket car like a $\frac{1}{12}$ -scale modified at night on a closed-course track, I would have said that it would be extremely difficult. Maybe, but these cars swallowed the 120-foot straight in the blink of an eye. In fact, if you did blink while driving, you usually missed the turn and found the wall! Roger Stensland drove as perfectly as it's possible to drive, capturing not only the top qualifier position going into the Main, but also taking a very convincing win as well. He had more than three laps over second-place winner Mike Scube. Due to the dark red paint on his car's TOJ body, Mike found the walls several times. But if you think finding the walls "a few times" is bad, poor Russ Escolero was really learning "racer's braille" the hard way. Amazingly, his dark blue car survived a savage beating and made it to third. The winners to fourth place were: 1st, Roger Stensland; 2nd, Mike Scube; 3rd, Russ Escolero; and 4th, Maurice Griggs.

The next race was for $\frac{1}{10}$ -scale 4WD cars. Few showed up to challenge the paved course, but those who did had real potential. It seems that the 4WD system of the Dominator cars was a superb handling combination. Peter Grubb took first place, followed by Ed Mullen in second.

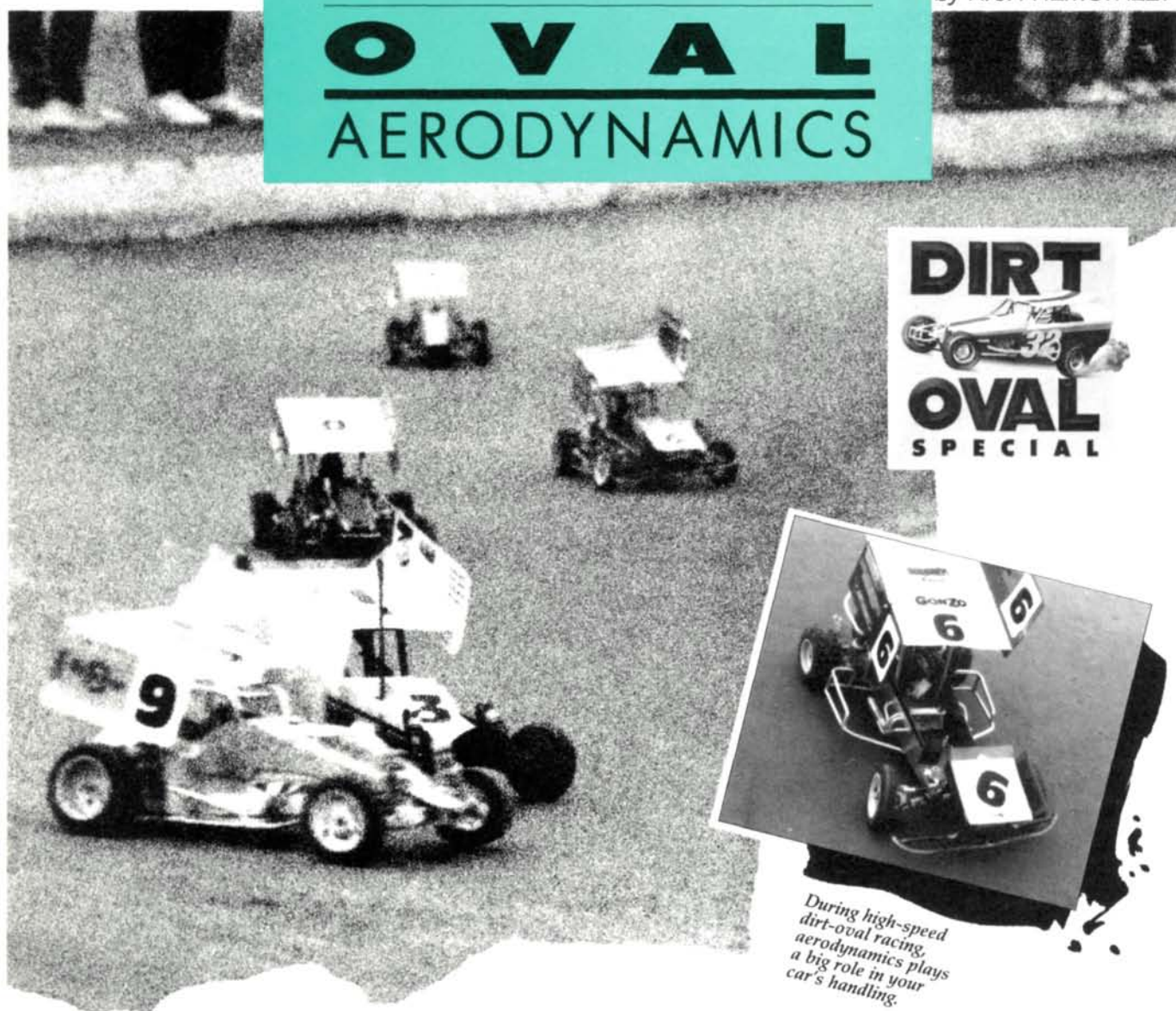
In the $\frac{1}{10}$ -scale Stock A Main, there was a good combination of road-racing bodies and open-wheel off-road

(Continued on page 116)

Working
with the
wind.

DIRT OVAL AERODYNAMICS

by RICH HEMSTREET



*During high-speed
dirt-oval racing,
aerodynamics plays
a big role in your
car's handling.*

THE JG OVAL is an all-out speed event on dirt, and if you don't have the horsepower, you won't win. But horsepower won't do you any good on a high-speed dirt oval if you don't pay attention to aerodynamics.

Aerodynamics greatly affects both the speed and the handling of a race car. This is as true in R/C racing as it is in full-size racing. Drag and lift/downforce are the main areas of concern for R/C racers. "Drag" refers to the car's resistance to moving through air; "lift/downforce" refers to whether the airflow is lifting the car off the track when it's moving at speed, or pushing the car down onto the track.

At the JG Oval, there were two basic body styles; cars were either outlaw sprint cars with top wings, or full-bodied stock cars. The stock cars were permitted to use rear spoilers and side dams, but no wings. (A spoiler is solidly

attached to the rear of the body, while a wing is mounted above the surface of the body.)

While the rules limited what the drivers could do to alter their cars' aerodynamics, it seemed that many limited *themselves* as well. In many cases, the wings used on the sprint cars were nothing more than flat pieces of Lexan. The top wing shape should be similar to the cross section of an under-camber airplane wing, mounted upside down. To provide the same amount of downforce, the flat "wings" require a greater angle of attack, hence greater drag, than a properly designed wing would need. A well-designed wing should produce greater downforce with *less* drag, which translates into higher speeds.

Most of the stock-car drivers chose wedge-shaped

(Continued on page 78)

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AERODYNAMICS



Most of the drivers at the prestigious JG Oval Championship chose stock-car bodies with large side dams.

bodies, but in some cases, the shape of these cars can be a liability aerodynamically. The large, sloped front end acts as a spoiler, and this increases downforce on the front tires. This may cause oversteering and subsequent spin-outs. Many of the JG competitors had problems with severe oversteering. A handful of drivers used Grand National body styles. Most of these cars exhibited mild understeering in the corners; this meant that these cars were easier to drive at high speed, and they needed very little in the way of



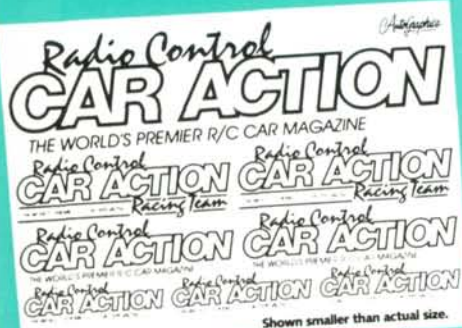
The shape of the No. 2 car's front end put too much downforce on the front tire. This can cause oversteer and excessive aerodynamic drag.

rear spoilers.

In contrast, I saw one wedge-body driver after another adding a larger spoiler to the rear of his car, hoping to correct the oversteering. By increasing the downforce at the rear of the car, the downforce at the front of the car is neutralized. While this approach works, it's inefficient. The taller and larger a spoiler becomes, the greater the amount of drag it creates, and drag slows a car. If these drivers had already made the tire changes necessary to decrease the oversteering, they would perhaps have been better off replacing the wedge body with a blunt-nosed GN or ASA body style. Perhaps the best tire combination for the wedge wasn't found on this particular track. It's usually easier to add steering

(Continued on page 106)

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Wilton, CT 06897

Shown smaller than actual size.

RACER'S EDGE

by JOEL JOHNSON



IF YOU WANT to make the most of racing R/C cars, you have to *practice!* Race as often as possible, and make sure that your use of the practice time is productive and well-planned. Racing is the most effective type of practice, as long as you learn from your experience each time you race. However, I'll give you some tips on how to improve your driving skills without racing in organized races.

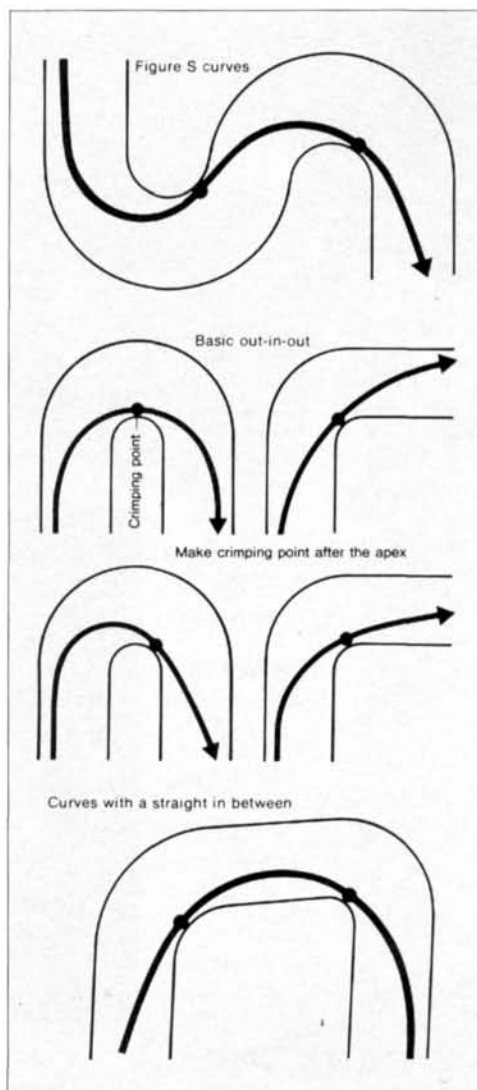
Slalom Course

When I first started running R/C cars, I practiced on a slalom course. Make your course about 50 feet long, and space the cones (or other suitable objects) four to five feet apart. This exercise will discipline your throttle control and increase your depth perception, i.e., your ability to judge distances. After a while, reduce the distance between cones to make the

course more difficult. First, stand at one end of the course and run the car *away* from you until you become proficient. Next, try running the car *towards* you. Remember that your steering will be reversed when you run right at yourself. After a while, this will become second nature, and you'll be well on your way to becoming a winner.

To get used to driving around corners from different perspectives, try standing at different angles to the slalom course. Not every track has corners that are perpendicular to or parallel to the drivers' stand, so you should learn how to judge distances from different angles.

Exercise Routines



Shown at right are the best lines through some of the most common turns in R/C racing. If you set up a course and practice holding your line through the turn, it will soon become second nature.

Following

Another exercise that will improve your driving skills is following someone else's R/C car. Closely follow the car's every move without running into it. This exercise will teach you how to look out for what's in front of your car, and you'll learn to anticipate the other driver's next move. This skill is vital if you want to become a driver of national standing, because while driving a race, you must always look ahead to make sure that the track in front of your car is clear. The key to driving a clean race is to know what's going on in front of you.

Aiming

Practice *aiming* your car by putting
(Continued on page 90)

LAZER LITE
RACING
SYSTEMS

SHADOW

Track Report



by ERIC GOLDSCHRAFE

A pre-assembled one-tenth-scale on-road chassis.

MANY RACERS OF full-size cars buy them from notable builders like Lola, Hutcherson-Pagan and Gambler, and they add the body, engine and wheels to make a complete setup. The 1/10-scale on-road racer can now do the same thing, thanks to Lazer Lite Racing Systems*. Its Lightspeed Shadow 2+2 comes nearly ready for some serious racing on pavement or carpet, and it has all the essentials of a really hot car.

The Shadow 2+2 is straightforward and state-of-the-art. It has a G-10 fiberglass chassis that's milled out in the same way as those of most contemporary top-of-the-line competitive on-road cars. A machined-aluminum rear-end assembly is mounted to a flex-plate off the main chassis, and it features a simple, but effective, shock setup made of steel and rubber tubing. The pre-assembled graphite axle has an adjustable ball-type differential and precision ball bearings. The hubs will accept MRP* or BoLINK* lightweight wheels and tires, and this gives the racer a good range of racing combinations. Three sets of

axle-locating blocks allow you to set the ride height of the chassis for given tire diameters, and they're easily changed by removing the axle.

The front end comes completely assembled and has coil spring-mounted steering arms and full-turnbuckle-adjustable alignment. A separate threaded rod connects the tops of the front-end uprights and alters the camber settings effectively by slightly tweaking the chassis. To increase the front track width by about an inch, an extra set of mounting holes is provided, but the one-piece turnbuckle

LAZER LITE SHADOW

LAZER LITE RACING SYSTEMS, INC.



Type On-road
Scale 1/10

DIMENSIONS:

Overall Length 14 1/4 inches w/o bumper
Width Adjustable
Height Adjustable
Wheelbase 10 1/4 inches
Front Track 7 1/2 inches
Rear Track 7 inches

WEIGHT:

Gross (w/rec. bat.) 2 lbs., 12 ozs.

BODY Not included

CHASSIS:

Type Plate
Material Fiberglass

DRIVE TRAIN:

Type Spur gear
Differential(s) Ball

SUSPENSION:

Front: Type King-pin
Dampening None

Rear: Type T-plate
Dampening Bushing

WHEELS Not included

TIRES Not included

ELECTRICAL:

Motor Not included

Battery Required 6- to 8-cell

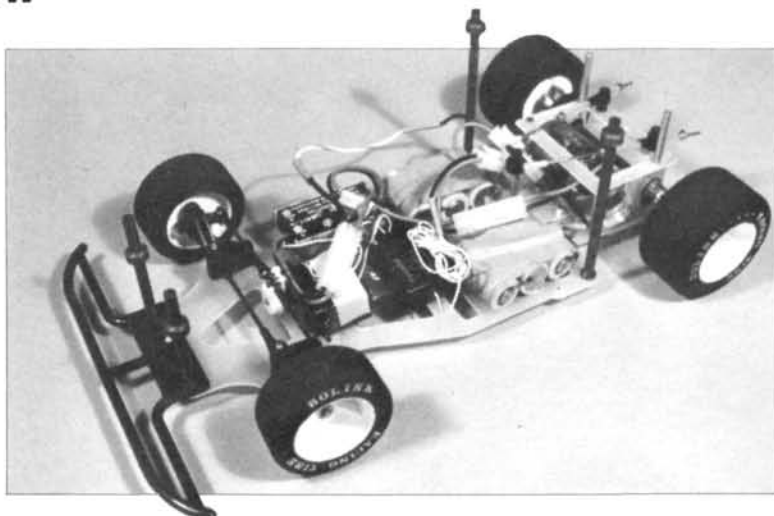
Speed Controller Not included

OPTIONS AS TESTED:

Magnum Jr. radio; Robart HQ505 Electronic speed control; Revtech 2WD-Oval motor, BoLINK wheels; McAllister Pontiac NASCAR body.

COMMENTS:

High-quality craftsmanship. The Shadow can be made to compete with some of the more expensive on-road racers. When widening the front suspension by moving suspension blocks to the outer mounting holes, it will be necessary to make a longer camber adjustment rod, because the original piece isn't long enough. Screws holding front suspension to chassis plate strip very easily.



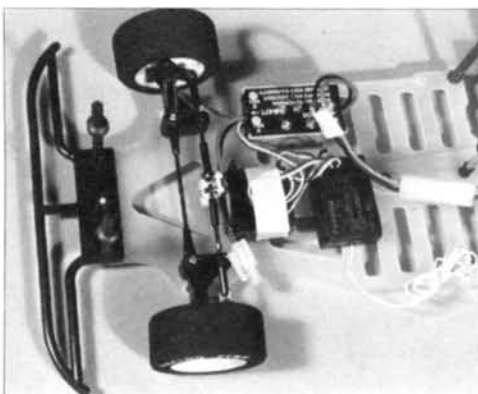
rod didn't reach between the connectors in this extended position. On our example, the cross-recessed screws used to hold the front-end assembly to the chassis were made of a lightweight metal. The screwdriver rounded out their slots too easily, necessitating their replacement with more adequate hardware. Ball bearings and snap rings mount the front wheels to the spindles.

R/C components may be easily secured to the chassis with servo tape in the usual locations, and the battery pack should be of the individual-cell style, split in half on both sides of the flex-plate. Tape or tie-wraps could be used to secure the Ni-Cds in place. As lightness equals high performance, a battery eliminator setup and an electronic speed control will save a few ounces and keep this light car on a par with the competition.

Four body-mounting posts and a pair of aluminum wing mounts

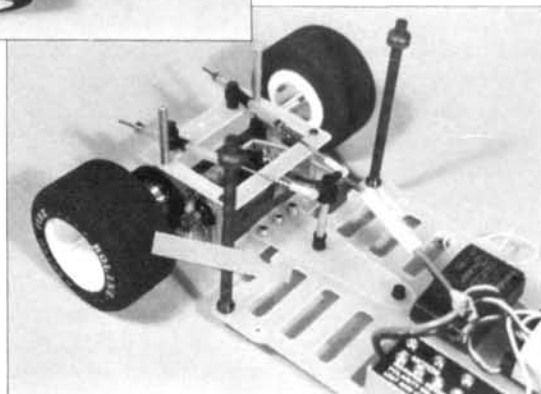
are provided, thus allowing the use of a wide range of body styles. The car in this review was fitted with McAllister Racing's* excellent version of the '88 Pontiac Grand Prix. This body was painted and lettered in the highly visible green-and-yellow

(Continued on page 88)



Above: The Shadow features the same basic suspension geometry as most other expensive on-road cars.

Right: The rear-end view shows the simple, yet effective, silicone-tube dampening.





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No. ARI200-704B
Max Torque for Off Road Buggies! 18,100 RPM. **\$29.95**

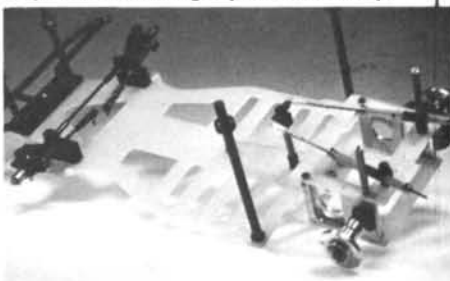
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LAZER LITE SHADOW

scheme of the Country Time Lemonade-sponsored stocker driven by NASCAR's Michael Waltrip. MonoKote* trim-sheet material and an assortment of small decals were used for the details on the completed car.

With a hot stock motor and a 6-cell Ni-Cd pack, this car will certainly be adequate for serious racing, and it would make a great first car for someone new to pavement competition. Some experimentation with tire compounds will get the car basically dialed-in, and fine-tuning with the front-end alignment and differential adjustments will get you race-ready.



This is how the Lazer Lite Shadow comes out of the box. It includes a ball differential, ball bearings, fiberglass chassis and more.

Entering a corner at high speed will result in some understeer, but a little throttle will set the car into a nicely controlled slide through the corner. A little tire compound will help, too, but you have to experiment to find your own setup for a particular track.

The Shadow 2+2 is fun to drive. It has good high-speed stability, shows no tendency to wander or bump-steer, and it really stays stuck to the ground. It would have been interesting to see just how well this car could perform against some of the more elaborate competition; perhaps this could be arranged in a future shootout?

**Here are the addresses of the companies mentioned in this article:*
Lazer Lite Racing Systems, 2090 SW 71 Ter., Unit H8, Davie, FL 33317.
MRP, 18676 142 Ave. NE, Woodinville, WA 98072.

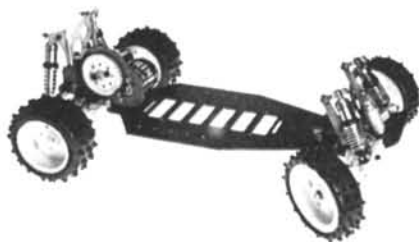
BoLINK R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

McAllister Racing, 4545 Industrial St., Unit 5H, Simi Valley, CA 93063.

MonoKote, distributed by Top Flite Models, 2635 S. Wabash Ave., Chicago, 60616.

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RACER'S EDGE

(Continued from page 80)

a cup or something soft on the course, and then try to hit it with your car, or try to avoid it. This way, you'll learn to put the car where you want it. Move the object after five consecutive "hits"; hitting the object isn't as easy as it sounds, so be patient. When you can consistently steer accurately, you'll be able to avoid any holes or ruts on the track that have to be avoided during every lap, and you'll be able to steer clear of pile-ups!



Off-road exercises

So far, all the exercises I've covered are useful for both on-road and off-road cars. Now for some specific exercises for off-road:

(Continued on page 104)

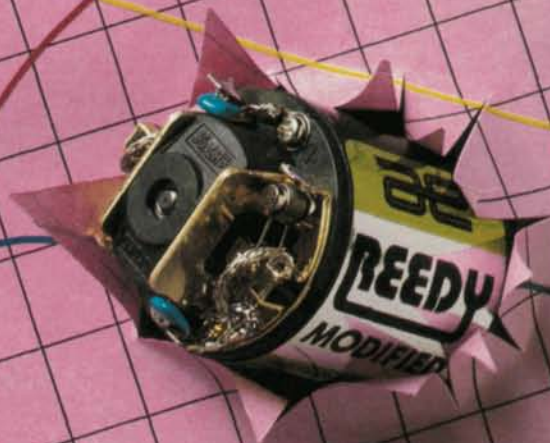
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THE SCOOP ON COOPS

Creating that "sick" machine,
von Erich shows you how.

by ERIC GOLDSCHRAFE

WHEN THE "muscle-car" was born back in the mid '60s, its distinguishing feature was the hood scoop.

The original muscle-car—the Pontiac GTO—sported a nifty scoop in the middle of the hood, and this set it apart from its more mundane cousin, the Tempest. To emphasize performance, sequels, i.e., the Mustang, Super Bee and Firebird had scoops of various styles and coordinated graphics.

Displaying the ultimate in brutish appearance, the awesome '69 Road Runner and Coronet 440 "Six-Pack" cars had standard lift-off fiberglass hoods and Mopar-style Super-Stock scoops. "Shaker" scoops appeared at the end of the '60s; their air filters had styled scoop covers stuck through openings in their hoods, and they shook visibly to the beat of a high-lift, long-duration camshaft.

Add-on hood scoops allowed enthusiasts to get "the look" on their hopped-up, standard-model cars, e.g., the Hemi-Dart scoop my brother added to his 340-powered, '66 Valiant sedan. (Everyone was *sure* it was a Hemi!) In about 1970, advancements in horsepower technology involving injection, superchargers and tunnel-ram manifolds created the need for tall Pro-Stock-style scoops, and these are still popular, particularly on Pro-Street cars. Hood-scoop science was developed with

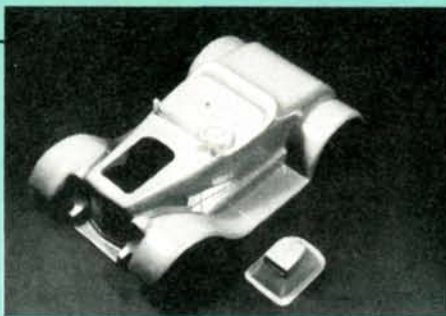
(Continued on page 96)



PHOTO CREDIT: ERIC GOLDSCHRAFE



The basic ingredients needed to install a hood scoop: a body (note outline of scoop base drawn on hood), a scoop, a china marker (grease pencil), a pair of scissors and a hobby knife.



When the hole has been cut in the hood of the body, paint is applied and the scoop is installed from below.



With the scoop installed, the body is ready for detailing.

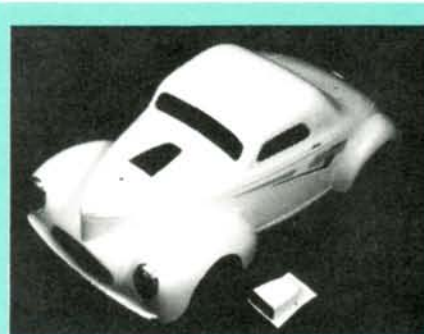
the aim of increasing *horsepower*, but the added-on, strictly business appearance definitely makes a car look *hot*!

Even though your R/C car is electric powered, you can still add some of this businesslike styling, thanks to the imaginative crew at Parma*. Parma's recently released Hood Scoops (No. 10410) and Pro-Stock Scoop (No. 10407) offer a completely new dimension in creativity and individuality. Now it's easy to build a realistic hot-rod or drag car; you can even add a scoop to a finished body. For this article, my 12-year-old son, Richard, and I came up with a few combinations to illustrate just how easy it is to customize your car with these scoops.

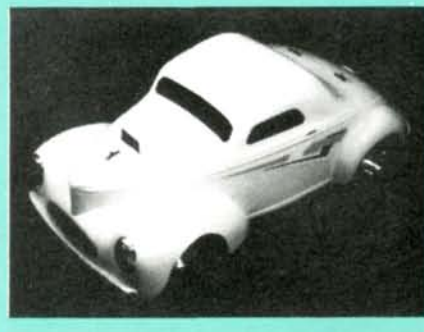
Inspired by a recent issue of *Hot Rod* magazine, Richard designed and built the Pro Fat '41 Willys coupe, using the tallest of the three scoops included in the No. 10410 set to achieve the classic "gasser" look. After this scoop had been cut off the sheet, it was placed upside down inside the hood of the unpainted body and then temporarily taped in place. A common china marker was used to trace the outline of the scoop onto the top of the hood. (A china marker is a type of soft crayon that writes on almost anything, easily wipes off polycarbonate bodies and is available in stationery stores.) The tape was pulled off, the scoop was removed and, following the outlines, the hole was carefully cut out with a hobby knife. The marker lines were then wiped off and the scoop test-fitted into place. Final trimming was done, and the body and scoop were prepped for painting.

To keep this project simple for first-timers, Rich spray-painted this body after masking off the windows. The brilliant Pactra* Daytona yellow was set off by bright, neon, striped graphics made from Top Flite's* MonoKote trim sheets. We decided on a final design by sketching the stripes on the body with

the china marker. After several designs had been tried and wiped off, the ultimate design was traced onto a sheet of drafting vellum (tracing paper). Various stripe patterns were traced onto three trim sheets of contrasting colors, and the designs were then cut out with a sharp knife.



The '41 Willys body from Parma is shown here with the added scoop, which gives it the authentic "gasser" look.



These stripes had to be applied carefully, as there are distinct left-side and right-side patterns, and the colors overlap for the "flip-flop" look that's in vogue on contemporary rods. Window-tinting film was applied to the windows, and metal-foil tape was worked onto the headlights, the grill and the bumpers. When the body-mounting holes had been drilled through the hood and the trunk lid, the pre-painted scoop was installed from underneath and secured

with tape. The body was mounted on a Tamiya* Hornet chassis rolling on Pro-Line* rims with big 'n' little tires. This striking machine was quickly given the name Lightning Rod by its proud creator!

Another of Richard's creations involved adding a Pro-Stock scoop to Parma's 1927 Model T roadster, which was to be finished as an Altered Street-Roadster-Class (A S/R) drag car. He used the same techniques for marking off, cutting and mounting the scoop, but the job was slightly more difficult because the hood was narrower and the scoop was larger. This type of scoop is often mounted on top of the engine, where it protrudes through a hole cut in the hood, so a tightly fitting hole isn't necessary. Because of the contours around the base of the scoop and the curvature of the hood, the hole has to be somewhat larger than the base of the scoop, but the generous flange around the scoop makes up for this disparity. Watch out for more on this car—the "Insani-'T'"—in an upcoming issue!

Our third example uses Parma's '69 Malibu body with a pair of the small scoops found in the No. 10410 package, along with some wild paint to set them off. The twin offset scoops hint that some sort of exotic cross-ram manifold is feeding the gas to a powerful engine, and they really make the car look unusual. The scoops are mounted in the same manner as previously described, and they are then installed on the hood's existing "power bulges." Surrounding areas are painted with flat-black paint to emphasize the hot-rod look, and some MonoKote "power graphics" are applied to the sides of the car to let you know where it's at!

The scale-like Pro-Stock scoop supplied with Advance* kits is probably the most difficult scoop to install because, in addition to the long hole in the hood, to

(Continued on page 98)

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SCOOP ON SCOOPS

obtain the correct appearance, the back of the scoop must be trimmed to lie flush against the windshield. Look at some photos of full-size Pro-Stockers, and you'll see what I mean. This type of scoop is used on the more radical Pro-Street cars and many late-model drag racers. While the scoop is taped in position, upside down, on the underside of the unpainted body, the outline is drawn with a china marker onto the top of the hood. The hole has to be cut carefully, and a metal straightedge will help here. The back of the scoop should be trimmed so that it's slightly oversize, and then shaved down very gradually until the fit is good; try to remember that you can't put back *on* what you've cut *off*! Leave enough of a flange around the base of this scoop to provide a solid area of the tape and also to fill any gap between the scoop and the hole in the hood.

What's left? Use your imagination! Want a "Shaker" scoop like the ones on the Firebirds and 'Cudas—one that *works*? Cut the hole in the hood somewhat larger than it would be for a regular scoop installation, and mount the scoop to the *chassis* with some sort of a spring, so that it sticks about two-thirds of the way up through the hole in the hood. If the spring is installed correctly, the scoop will be free to move about in the hole with the slightest movement of the car. For even more impact, try painting the scoop black or silver, or paint it silver with red or black circles across the front to simulate the bug-catcher injector scoop on top of a supercharger.

Smaller hood scoops don't necessarily have to be used as hood scoops; they can be used as brake ducts on the quarter panels, e.g., the ones on the early Shelby Mustang Trans-Am cars, or as cooling ducts on a stock car. So go ahead—be creative!

**Here are the addresses of the companies mentioned in this article:*

Parma International, Inc., 13927 Progress Pkwy., N. Royalton, OH 44133.

Pactra (Plasti-Kote), 410 N. Michigan Ave., Rm. 1280, Chicago, IL 60611.

Top Flite Models, 2635 S. Wabash Ave., Chicago, IL 60616.

MRC/Tamiya, 2500 Woodbridge Ave., Edison, NJ 08817.

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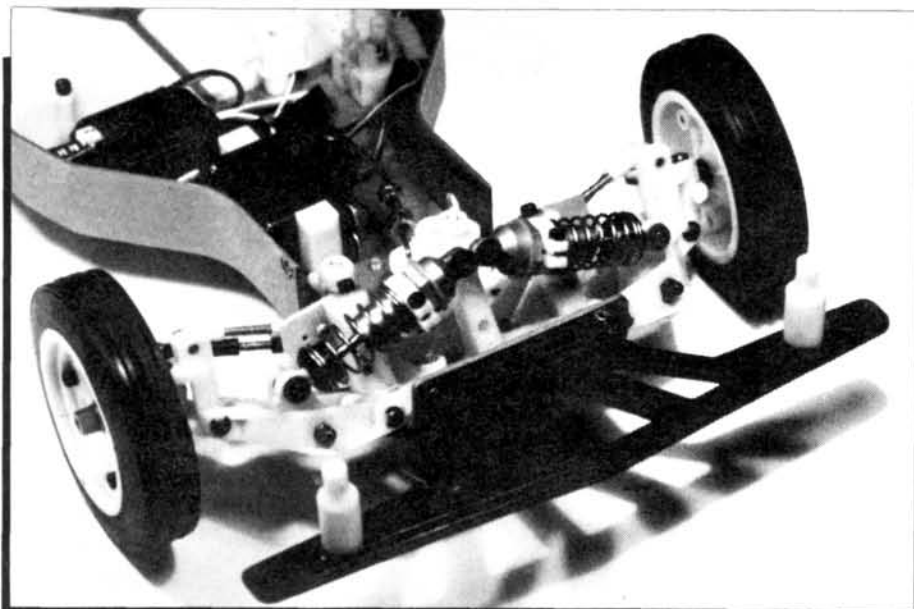
DIRT-OVAL TRACK RACING is increasing in popularity. Off-road drivers are leaving the jumps behind for flat-out, wheel-to-wheel, go-fast oval-track racing. The good news for these racers is that many of them don't need a new car to compete on the oval. Associated's* RC 10 is probably the most popular 1/10-scale 2WD off-road car of all time. In completely stock form, the RC 10 can run fast on an oval, but now McAllister Racing* has a new Oval Lowering Kit for it.

Most dirt-oval racing requires that the cars use stock-car bodies. To mount one of the sleek wedge-shaped bodies on a stock RC 10, you have to cut holes in the body to clear the shock towers. Not only does this look tacky, but it also adds drag. In other words, the car won't go as fast as it went *without* the shock-tower holes. The Oval Lowering Kit gets rid of both the front and the rear shock towers. The front towers have to be cut off just above the upper control

rod; the rear shock bracket is simply removed. A new shock mounting post is then mounted in the center of the RC 10 chassis, where the stock body would go.

The front shocks are removed from the A-arms, and new shock mounting blocks are attached in their place. The new mounting blocks are marked "L" and "R." These markings are supposed to be read while you're looking at the car from the front, so the "R" block is actually attached to the left front A-arm, and so on. The stock sway bar is also removed. Blocks are attached to the old sway-bar mount so that the kit's new sway bar can be fitted. (The new bar goes above the front shocks.)

When the shocks have been bolted into place and the sway bar has been installed, attention turns to the rear of the RC 10. To use the new rear shock mounts, you'll have to buy two more short Associated shocks. The new mounts bolt on easily, as do the shocks, but you may find that a longer screw is necessary to mount the shocks securely

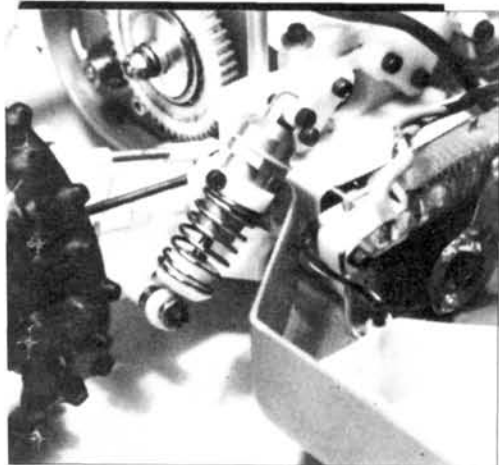


The McAllister Lowering Kit brings the front shocks to a more horizontal position. This allows the use of the lower-profile aerodynamic bodies that are so successful in oval racing.

to the lower A-arms.

The Oval Lowering Kit offers at least three benefits to RC 10 owners. First, it lowers the center of gravity (CG), so the car will handle better. With the stock RC 10 tires, the chassis has only three-quarters of an inch ground clearance after the lowering kit has been installed. Second, the kit saves weight, primarily by replacing the rear shocks with another set of front shocks. Third, it's easier to mount the sleek oval-track bodies.

To mount stock-car bodies securely onto an RC 10, you should use an Andy's* RC 10 front bumper/body mount "oval." This bumper has body-mounting holes on each end.



When using the McAllister Lowering Kit, a set of short Associated shocks is used, too, for a lower profile and a lower CG.

McAllister's body-mounting kit works well with the bumper to make a "bulletproof" installation. I put a BoLINK* NDRA Firebird wedge on my RC 10, because this body works well on low-speed ovals.

I also installed Bud's* quick-change shock-spring retainers. These make it easier to change the coil springs on the shocks. When fine-tuning your oval-track RC 10, you'll be changing springs and the tension on the springs. Generally, to cut down on steering response, while getting lots of traction in the rear, you should start with stiff springs on the front and softer springs on the rear end.

The McAllister Racing Oval Lowering Kit will also improve your RC 10's performance on carpet tracks during winter racing.

Leave the gimmicks of jumps and bumps behind, and try dirt-oval racing for some serious competition. The Oval Lowering Kit is just the ticket for setting up your RC 10 for serious oval-track racing.

**Here are the addresses of the companies mentioned in this article:*

Associated Electrics, 3585 Cadillac Ave, Costa Mesa, CA 92626.

McAllister Racing, 4545 Industrial St., Unit 5H, Simi Valley, CA 93063.

Andy's R/C Products, 466 W. Arrow Hwy., San Dimas, CA 91773.

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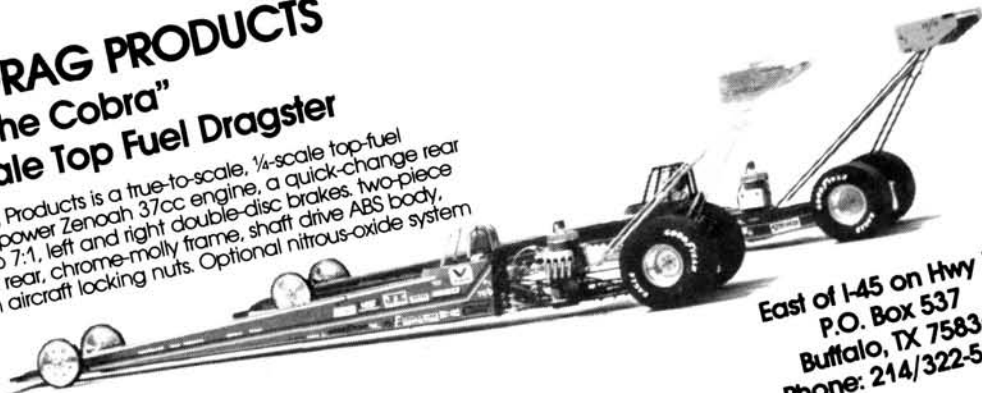
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RACER'S EDGE

(Continued from page 90)

Taking jumps well is one of the most important skills. Jumps seem easy, but if done incorrectly, they'll lose you time on the track, even though you might not realize it. A car sailing feet into the air off a jump looks spectacular, but, for the most part, this approach is wrong. You should get the car back onto the ground as quickly as possible, while maintaining as much speed as is feasible. A car *won't* travel faster in the air!

Also practice making the car land flat

on the track after a jump. The attitude of the car can be controlled by applying the throttle while the car is airborne. The more throttle you apply while the car is flying, the more the front end will lift. The throttle acts like an elevator on an airplane, and this is especially true of 4WD cars. If you hit the brakes while the car is in the air, the nose will drop.

If you want to try off-road racing, you must learn to control your car when it starts to slide. This can be practiced in any dirt lot—preferably a dry, dusty one—where the car has less traction. This

exercise will help you to learn how to keep the car going in the direction you want it to go on a slippery surface. To increase the challenge, set up a slalom course on this tricky terrain. This exercise is particularly important to drivers of 2WD cars, because the 2WD car is very prone to traction problems, and if you can learn to drive a 2WD car well, 4WD will be a snap!

You can practice most of these exercises on your own, but it's much more productive and more fun to do it with a

(Continued on page 106)

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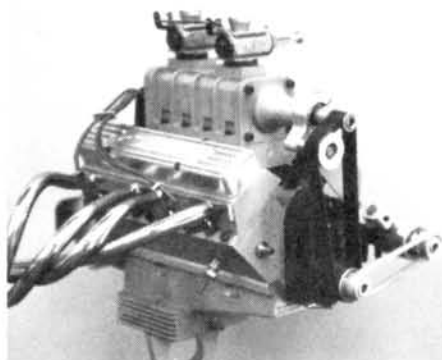
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RACER'S EDGE

(Continued from page 104)

friend. Remember: Practice *with* one another, don't *race*! Use the club races to race against other drivers, but *help* each other become better drivers during the week's practice exercises.

The exercises reviewed here teach all the most important skills you need to become a winner, but the best practice in the world is racing. Go racing every weekend, and put as much time on your car as you can. There's no substitute for good ol' competition!

Until next time: Just take care of the "HOW," and the "HOW FAST" will take care of itself! ■

AERODYNAMICS

(Continued from page 78)

through tire and suspension changes than it is to correct for too much downforce on a specific part of a car's body.

Most of the stock-car drivers ran very large Lexan side dams on the left sides of their cars. These dams help to keep the rear end of the car from sliding out in the corners. During one race, a car lost the

(Continued on page 108)

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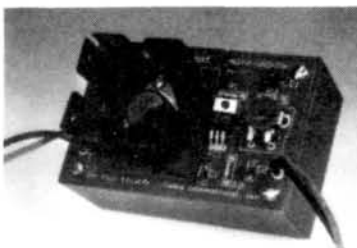
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AERODYNAMICS

(Continued from page 106)

side dam in a wreck. From that point on, the car was dirt-tracking through the corners and it spun out several times. Before the side dam came off, the car had been cornering as if it were on rails!

Once again, the side dams are related to the car's tendency to oversteer. A car with neutral steering, or one that understeers, doesn't need any side dams; side dams add drag in the turns and, to some extent, even on the straights. So if you can set up your dirt-oval racer to avoid oversteer, you'll also be able to avoid aerodynamic drag. And less drag means more speed. And speed is where dirt-oval racing is at...!

OUTLAW

(Continued from page 34)

a Paragon* Turbo-Pac was installed for evaluation. This is a small, lightweight, plastic bottle, a pair of needles and a section of fine plastic hose. It uses a metered-out amount of Paragon's Formula 1 motor cleaner to continuously clean the commutator of the motor while

(Continued on page 110)

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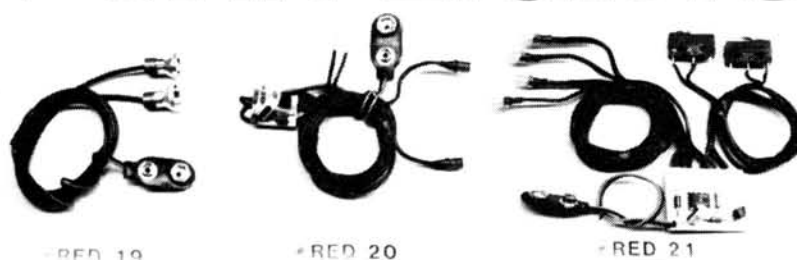
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OUTLAW

(Continued from page 108)

the car is running. Some motors have a small hole in the end bell that may be used for this installation, but Trinity required that a fine drill be used to open up a hole for the injector needle. This must be done with a certain amount of care, as allowing the drill to touch the commutator may ruin it. The needle is inserted until it *almost* touches the commutator (be careful!), and the needle at the other end of the hose is inserted into

the bottle and bent to provide good pickup. Fluid flow is determined by the height of the bottle relative to the motor. A plastic mounting bracket and some Velcro strips are provided for installation of the bottle and to make the necessary adjustments. As might be expected, there wasn't a noticeable improvement in the performance of our brand-new motor, but Formula 1 motor cleaner does help to keep dirt and carbon from accumulating. An older motor will definitely "wake up" with this gadget, and you can really tell

that it's working. It's a neat add-on that doesn't significantly increase the car's weight, and when you go "on the bottle," it's like having a nitrous setup on your electric motor.

The polycarbonate body was prepared for painting in the usual manner, and the windows were masked with tape. We used Floquil* model railroad paint, thinned with Floquil Dio-Sol and with some automotive flex agent added. The brilliant orange-and-blue striping on the

(Continued on page 115)

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OUTLAW

(Continued from page 110)

white background follows the McAllister and Loctite corporate colors, and the Loctite lettering was cut from bumper stickers. The wheel discs are part of the Loctite logo. The trim was made with Top Flite* MonoKote trim-sheet material and some artists' screening material. Using Paragon's Slip Stream wax kit, the body was cleaned and polished for a concours-quality finish.

*Here are the addresses of the manufacturers mentioned in this article:

McAllister Racing, 2205 First St., Unit 107, Simi Valley, CA 93065.

Loctite Corporation, 18731 Cranwood Pkwy., Cleveland, OH 44128.

Futaba Corporation, 555 W. Victoria St., Compton, CA 90220.

Trinity, 1901 E. Linden Ave. #20, Linden, NJ 07036.

Paragon Racing Products, 8802 Knollwood Dr., Eden Prairie, MN 55344.

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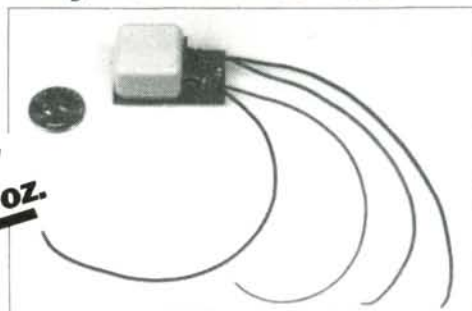
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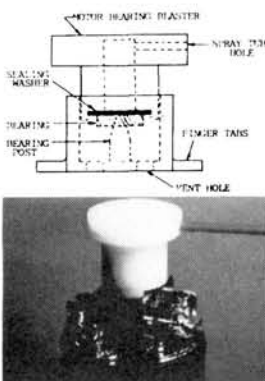
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NIGHT ROAD RACING

(Continued from page 75)

bodies, and the road-race-body cars took the top four qualifying positions. The remaining four positions were taken by off-road-body cars. In the first few moments of the race, we found out why this happened. Just as with off-road racing, if you have an open-wheel car and you touch another car's wheels, you'll go for a ride... usually off the track! That's what happened to many as they came into the first turn, and the road-race-body cars got away cleanly. Russ Escolero's Special Award-winning car—the BoLINK/Jaguar—took off running, with the other seven cars trailing it. The opening laps saw one of the open-wheel off-rovers seriously challenging the Jaguar, but it dropped back after about two minutes. From then on, the Jag held on to win. In the race for second, third and fourth places, the remaining road-race-body cars battled it out for a piece of the action. Positions swapped a dozen times, and the Pontiac Grand Prix of John Giblin entirely lost its right side in a sideswipe collision. This was no cakewalk, and the results were: 1st, Russ Escolero; 2nd, Pete Grubb; 3rd, Wally Kile; and 4th, John Giblin.

This was an incredible race. The challenge of road racing, the speed of drag racing and the uncertainty of the night all combined to make this race exhilarating for all. Craft-Air's great idea is sure to catch on everywhere. Night racing with headlights is a new, exciting class of racing. The headlights are very bright, but don't appreciably drain the batteries. We're grateful to *R/C Car Action* for instigating such an outrageous event, and we also thank the San Diego Stadium Race Club for the use of its fine facility. If you haven't yet challenged the night, then you've missed a unique racing thrill.

*Here are the addresses of the companies mentioned in this article:

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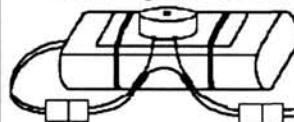
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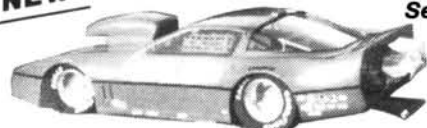
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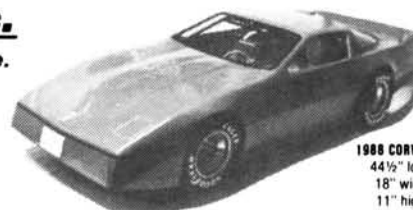


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NIGHT ROAD RACING

(Continued from page 116)

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DIRT-OVAL OPTIMAS

(Continued from page 49)

During assembly, to allow free movement, I found that I had to round off the top edges of the bumper considerably, where the lower front-suspension arms mount.

Mounting the rear differential assembly to the chassis also requires some skilled work. The instructions require that a 1 3/4-inch section of the original aluminum chassis rails be cut off for mounting the rear differential. When these have been cut, they must be screwed to the aluminum housing supports and then drilled and tapped to mount to the chassis. This process doesn't really present a problem if you have a drill and a tap, but a 3x.5mm isn't the most common tap size. (A little work on the "Yellow Pages" is in order here.) When mounting the rear diff to the chassis, I found that there wasn't enough clearance between the chassis and the lower chain guide where the chain enters the rear. This was rectified by using four spare shock pistons (from the Kyosho shocks) as spacers under the sections of frame rail.

For power, a 6- or 7-cell flat battery pack can be used, and there are battery cutouts to accommodate 6 cells, side by side, for the lowest center of gravity. I used the new Parma* Matched 1700mAh Sanyo cells with eye-opening results. To say the least, these cells will allow considerably faster speeds for longer periods of time, and when teamed with a Tekin* speed control and a Futaba* Magnum radio, the combination is tough to beat.

The only weak link in the drive system was the Kyosho LeMans 240S motor. These motors are great performers, but when it comes to the raw power and high speeds that are needed for oval racing, nothing holds a candle to the hand-wound high-performance motors. With a quick motor change and a few more teeth

(Continued on page 123)

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DIRT-OVAL OPTIMAS

(Continued from page 118)

on the pinion gear, the Optima was a completely different animal.

The Optima Mid

The Optima Mid is the other half of the Oval Optima duo. To convert the Mid into an oval machine, I used a new Trinity* composite chassis, which is similar to the RCH chassis, as all the batteries are located on the left of the car. This wasn't such a complex operation, because the Trinity chassis plate simply replaces the original aluminum pan on the Mid. Once again, the Parma Matched 1700mAh Sanyo cells were used to assemble a pack that fits into the battery cutouts. To reduce the weight as much as possible, a pack of light hardware, consisting of high-quality aluminum screws and light kingpins, replaced the original fasteners. This may not sound as though it would save a great deal of weight, but when you hold a pack of the original fasteners in one hand and the Trinity package in the other, you notice a considerable difference.

A Trinity 4WD oval motor (No. 2014) was used, and the guidance system was, once again, the Futaba Magnum with an FT-S135 lightweight mini-servo handling the steering.



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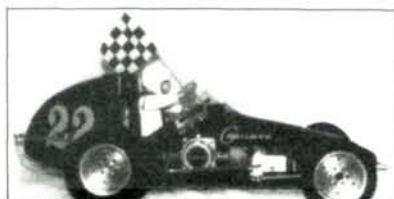
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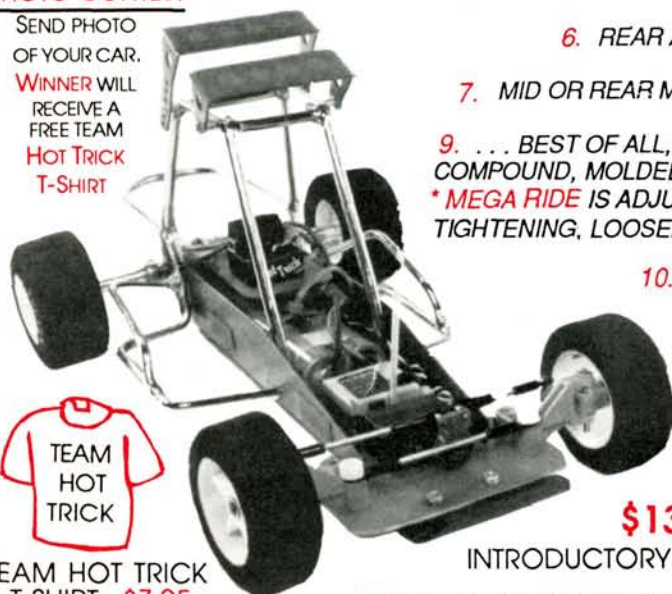


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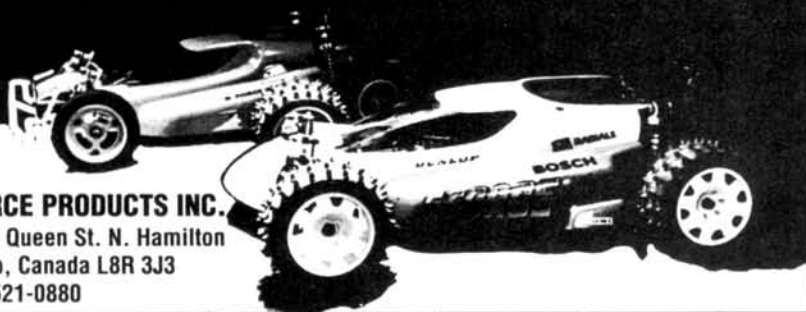
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DIRT-OVAL OPTIMAS

(Continued from page 123)

The only obstacle I encountered during the Optima Mid conversion was the battery location. One might guess that since there are cutouts for seven cells, you should be able to use a 7-cell battery, but this is *not* the case. The cell on the end of the battery pack at the rear of the chassis interfered directly with the motor. With the battery pack in place, you can't install the motor, and with the motor in place, you can't install the battery properly. However, I still used the 7-cell battery by simply sliding it about $\frac{3}{8}$ of an inch out of the cutouts and securing it with tape as I usually do. You could also use a 6-cell pack or stack the seventh cell on top between the fifth and sixth cells.

The body used on the Optima Mid was supplied by R/C Colorworks*, which offers a full range of bodies from different manufacturers, painted in just about any imaginable color. Those of you who haven't yet mastered the art of painting, or simply don't want to try, should give R/C Colorworks a shout.

Methods of mounting the body on the Optima Mid and on the RCH Optima conversion are left to the builder. With a

(Continued on page 126)



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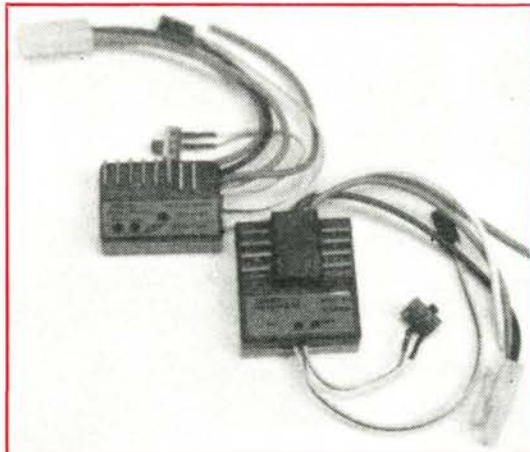
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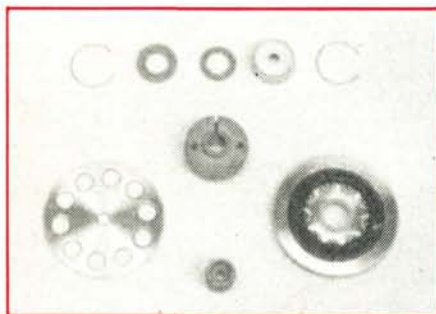
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DIRT-OVAL OPTIMAS

(Continued from page 124)

wide variety of available body mounts, you'd think there wouldn't be a problem mounting the body. However, I soon learned that when mounting a body on one of these oval machines, it's best to place the mounts as far front and back and as wide apart as possible. For the Optima Mid, I placed the front mounts on the leading edge of the chassis right behind the steering linkage. In most cases, this would have been a sufficiently good mounting location. However, since an oval body has a long nose, this mounting location doesn't lend enough support, and the nose will dig into the ground with every bump in the track.

Whichever route you choose—buying a specialized oval car or making an economical conversion—oval-track racing has a lot to offer. If you think that turning left on a big circle is boring, consider that oval cars travel at the fastest possible speeds and are a knife-edge away from breaking loose at every turn. You have to use science to keep an oval racer up to competitive speeds, and it just may be the ballistic challenge you're looking for.

(Continued on page 131)

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(Continued from page 126)

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Trinity, 1901 East Linden Ave. #20, Linden, NJ 07036.

R/C Colorworks, 918 North 9th Ave., Up-land, CA 91786. ■

PROJECT BIG BEAR

(Continued from page 55)

surface for the idler shaft to rotate in. Humpbacked 8.4V batteries fit in the battery tray and will provide more rpm if your motor and speed controller can handle it. Remember that these tractor-type tires will have a hard time getting traction in loose dirt if you increase the power too much. To remedy this problem,

I hope manufacturers will introduce after-market spiked tires for the Big Bear.

The simplicity of this kit helps keep maintenance to a minimum. Before each run, you should ensure that all the friction points in the suspension are properly oiled

or greased for it to work at maximum efficiency. Use Slip-It on anything that moves, except where grease is recommended. Re-grease the differential at least every six hours of running time. A

(Continued on page 134)

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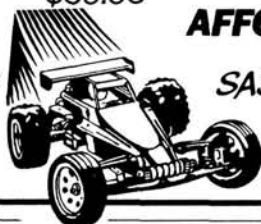
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PROJECT BIG BEAR

(Continued from page 131)

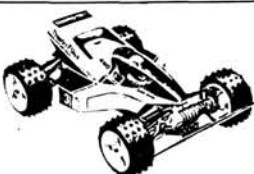
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(Continued on page 151)

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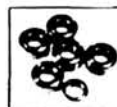
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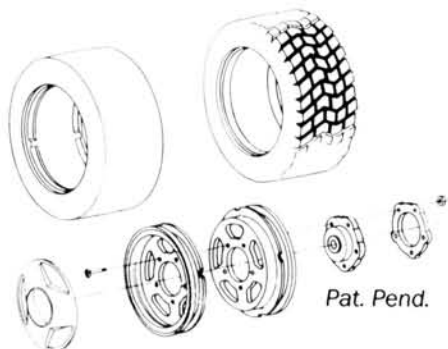
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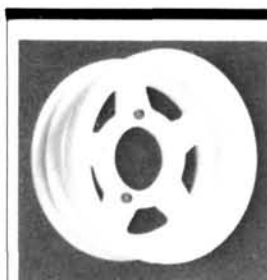
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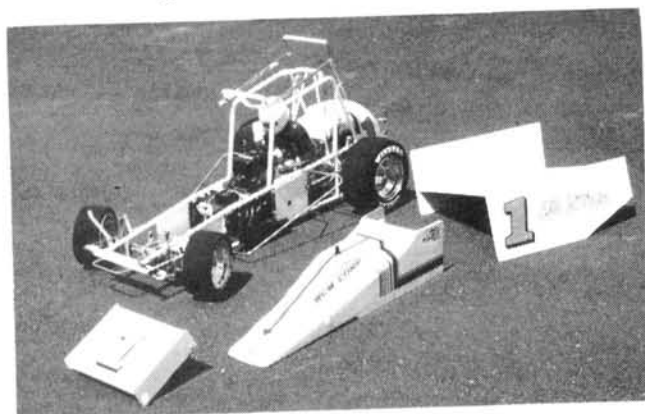
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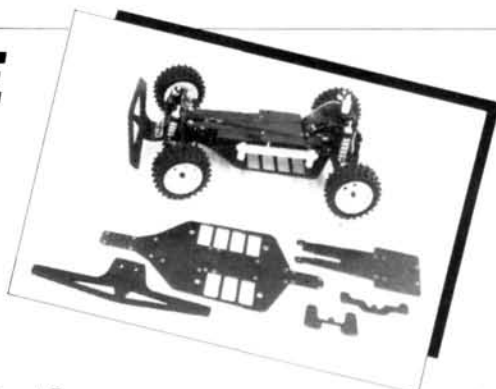


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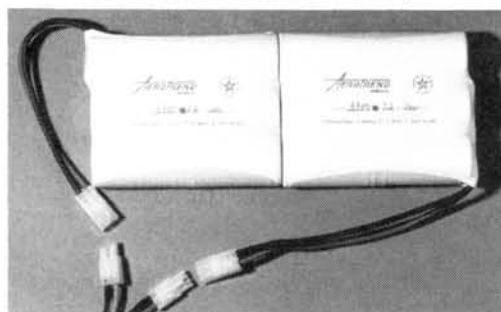
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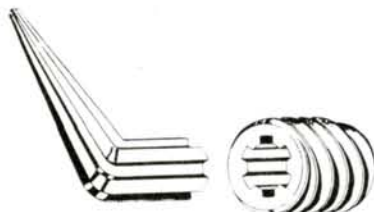
PARMA

- Flexible antenna: Parma's new flexible antenna will fit Futaba's Magnum, Magnum Jr. and Magnum Sport transmitters. They have the same range as the stock antennas, they won't obstruct anyone's view of the race track, and they won't bend or break.



- Sprint-car body: Parma's new Challenger sprint-car body, with headers molded in, is designed to look realistic. Although this body was originally manufactured for Parma's 1/10-scale sprint-car kit, it will also fit many other 1/10-scale narrow-chassis cars.

For more information, contact Parma International, 13927 Progress Pkwy., North Royalton, OH 44133.

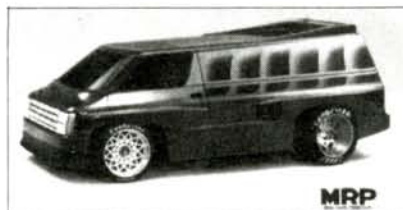


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- Splined setscrews: Now available from MRP, these splined setscrews are direct replacements for the hex 4-40 setscrews used in pinions and elsewhere in R/C cars, boats and aircraft. The splined shape of the wrench allows greater torque, so the setscrew won't loosen at that critical moment. Each package contains 12 setscrews and the special splined wrench.



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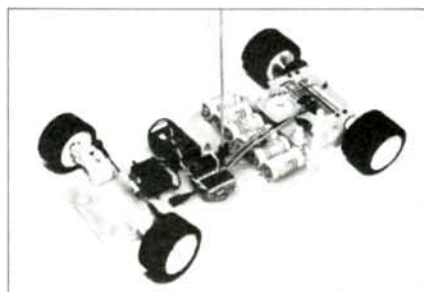
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For more information, contact C&M Mfg., P.O. Box 680233, Park City, UT 84068.

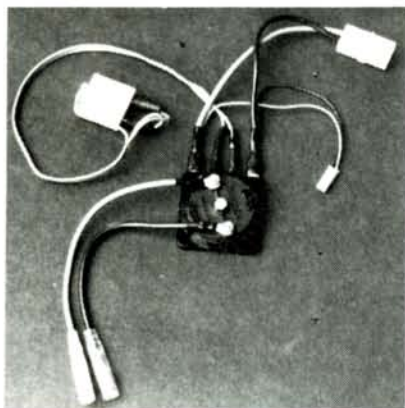
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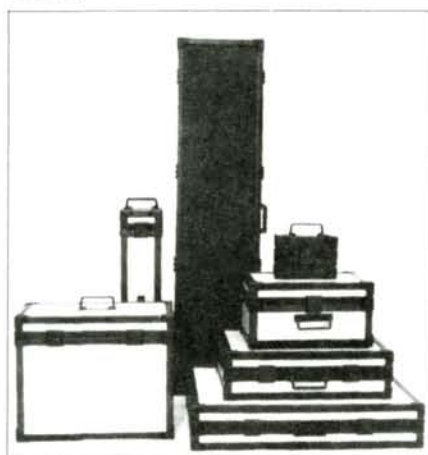
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(Continued on page 163)

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In keeping with our constant efforts to help foster the growth of the radio-control car hobby, we've decided to run this track directory intermittently to inform modelers where they can race and exchange ideas. If you'd like your track listed, send us your name, address, phone number and some information about the track to **R/C Car Action Track Directory**, 251 Danbury Road, Wilton, CT 06897. We'll list as many clubs as space allows.

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